

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2601.—Vol. LV.

LONDON, SATURDAY, JUNE 27, 1885.

PRICE ..... SIX PENCE.  
BY POST, £1 4s. PER ANNUM.

**MR. JAMES H. CROFTS, STOCK AND SHARE BROKER,**  
AND MINING SHARE DEALER,  
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.  
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING STOCKS and SHARES (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

BUSINESS negotiated in STOCKS and SHARES not having a general market value.

Every week a GENERAL and RELIABLE LIST issued (a copy of which will be forwarded on application), containing closing prices.

MINES INSPECTED.  
BANKERS: CITY BANK, LONDON—SOUTH CORNWALL BANK, St. Austell.  
TELEPHONE NUMBER 1003.

SPECIAL DEALINGS in the following (or part):—

100 Asia Minor, 3s. 6d.	200 Gunns, (Cilt.), 7s.	20 Phoenix United, 26s.
150 Akankoo, f. pd., 5s. 3d.	40 Panuclillo, 47s. 6d.	30 Panuclillo, 47s. 6d.
100 Almada, 2s.	50 Home Mines, 13s. 9d.	15 Rio Tinto, £10 10s.
10 Bedford United, 17s. 6d.	200 Indian Consolidated, 3s. 9d.	10 Roman Gravel, £3 17s. 6d.
250 Balkis, 1s. 6d.	100 Javali, 2s. 3d.	100 Ruby (New), 3s. 9d.
50 Bratsberg, 17s. 6d.	100 Kapanga, 3d.	20 Richmond, 23s. 2d.
200 Cankim Bamoo, 1s.	25 Kim, North Block, 2s.	20 Schwab's Gully, £3 17s. 6d.
50 Carn Camborne, 3s.	100 Kohinoor B, 2s. 9d.	140 Spitzkop, 5s.
50 Callao Bis, 12s.	100 Kohinoor C, 2s. 9d.	50 South Caradon, 5s.
100 Cartago, f. pd., 3s. 3d.	25 La Trinidad, 4s. 10s.	15 South Condurrow, 47s. 6d.
100 Cienfuegos, 12s.	25 Leadhills, 3s.	20 South Darren, 6s.
100 Cape Copper, 23s.	200 Lisbon-Berlyn, 1s. 9d.	50 South Penstruthal, 3s.
100 California, 3s. 3d.	25 Marke Valley, 4s.	100 Tacuab, 1s. 3d.
25 Colorado, £1 14s. 6d.	15 Mason & Barry, £9 13s.	100 Tambacherry, 5s.
75 Canada Copper, 3s.	200 Montana, 3s. 6d.	30 Tollima A, £3 12s. 6d.
50 Chontales, 2s. 6d.	200 Mounts Bay, 2s. 9d.	20 ditto B, £2 13s. 9d.
150 Cor. South Australian, 3s.	50 Myre Gold, 3s. 6d.	150 Transvaal Gold, 2s.
100 Cuckoo, 6d.	100 New Chile, 17s. 6d.	50 Tregone, 3s. 6d.
100 De Beer's, £4 2s. 6d.	3s. 6d.	100 Tresavean, 3s. 6d.
100 Devala, 3s. 9d.	100 Nacupai, 1s. 3d.	20 Trevaunance, 37s. 6d.
100 Devon Con., £2 18s. 9d.	100 New Caradon, 1s. 9d.	50 Utd. Mexican, £3 25s. 21s.
125 Devon Friend, 6d.	100 New Callao, 2s. 9d.	100 Victoria Gold, 5s.
5 Dolcoath, £7 17s. 6d.	25 New Emma, 10s. 6d.	100 Wassaui Gold, 12s.
50 Don Pedro, 3s.	25 New Kitty, 12s.	100 West Bassett, £2 17s. 6d.
50 Drake, 3s. 9d.	150 Nouveau Monde, 1s. 3d.	100 Wheel Agar, £18 15s.
50 Duchy Peru, 10s.	100 New W. Caradon, 4s. 3d.	100 Wh. Bassett, £9 5s. 3d.
25 East Blue Hills, 4s.	100 Nundydoo, 9s. 6d.	100 West Callao, 2s.
100 Eberhardt, 4s.	50 Nine Reefs, 3s. 6d.	100 West Phoenix, 2s.
20 East Lovell, 4s.	100 Old Shepherds, 5s.	50 West Caradon, 2s.
100 East Wh. Rose, 3s. 6d.	50 Ooregum, 2s. 6d.	50 West Polbrean, 13s. 6d.
30 Ecton, 21s. 3d.	50 Organos, 7s. 9d.	100 West Kitty, £7 5s.
5 El Callao, £41 10s.	50 Orita, 11s. 9d.	100 Wheel Coates, 2s. 6d.
100 Frontino, 3s.	200 Oscar Vendors, fully paid, 6s.	200 Wheel Crebor, 24s.
50 Goginan, 1s. 3d.	25 Polbrean, £2 2s. 6d.	200 Wheel Kitty, 14s.
100 Gold Coast, 1s. 9d.	100 Potosi (New), 4s. 9d.	200 Wynand Perseu, 1s.
100 Glenrock, 3s. 6d.	50 Port Phillip, 2s.	
100 Great Holway, 20s.		
20 Great Laxey, £8 17s. 6d.		

\* BUSINESS at CLOSE PRICES in all marketable TIN, COPPER, LEAD, GOLD, SILVER, and DIAMOND SHARES.

\* SHARES SOLD for the USUAL FORTNIGHTLY SETTLEMENT.

\* SHARES SOLD at SPECIAL PRICES for FORWARD DELIVERY (ONE, TWO, or THREE MONTHS) on DEPOSIT of TWENTY PER CENT.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**HOME RAILWAYS.—SPECIAL BUSINESS.**—Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**FOREIGN BONDS.—FORTNIGHTLY ACCOUNTS OPENED** on RECEIPT of the USUAL COVER.

ARGENTINE. RUSSIAN.  
EGYPTIAN UNIFIED. SPANISH.  
ITALIAN. TURKISH.  
MEXICAN. URUGUAY.  
PORTUGUESE.

\* SPECIAL BUSINESS in the above Stocks.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**AMERICAN, CANADIAN, AND FOREIGN RAILS.—SPECIAL BUSINESS.** Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**BANK, OMNIBUS, TRAMWAY, GAS, WATER, and CANAL SHARES.**

BUSINESS in all the above, and fortnightly accounts opened.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**MISCELLANEOUS SHARES** of all DESCRIPTIONS BOUGHT or SOLD. SPECIAL BUSINESS in:—

AQUARIUM. IRON and COAL.

HOTEL. ELECTRIC LIGHT.

And other COMMERCIAL or INDUSTRIAL SHARES.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**OPTIONS** in all STOCKS and SHARES dealt in.—

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**DIAMOND SHARES OF SOUTH AFRICA.**—

ADAMANT DIAMOND. FRENCH DIAMOND.

ANGLO AFRICAN. KIMBERLEY CENTRAL.

DE BEER'S. KIMBERLEY NORTH BLOCK.

FRENCH AND D'ESTERRE DIAMOND. SCHWAB'S GULLY.

BUSINESS in the ABOVE at CLOSE MARKET PRICES for USUAL FORTNIGHTLY SETTLEMENT.

SHARES SOLD for FORWARD DELIVERY (ONE, TWO, or THREE MONTHS) on DEPOSIT of TWENTY PER CENT.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**SCHWAB'S GULLY DIAMOND SHARES.**—

DE BEER'S DIAMOND SHARES.

SPECIAL BUSINESS in the above, either for CURRENT SETTLEMENT or for FORWARD DELIVERY (one, two, or three months), on DEPOSIT of TWENTY PER CENT.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**EL CALLAO MINE (Venezuela),** paying regular MONTHLY DIVIDENDS, and at present market quotations yielding about 18 per cent. per annum. SPECIAL BUSINESS in these Shares.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**GOLD AND SILVER MINES.—INDIAN, NORTH AMERICAN, SOUTH AMERICAN, WEST AFRICAN, SOUTH AFRICAN, and MEXICAN Mining Shares.**

BUSINESS as BUYER or SELLER in all the above.

Shares Sold for Forward Delivery (one, two, or three months) on deposit of twenty per cent.

JAMES H. CROFTS, STOCK AND SHARE BROKER,

AND MINING SHARE DEALER,

No. 1, FINCH LANE, LONDON, E.C.

ESTABLISHED 1842.

LONDON BANKERS.—THE CITY BANK.

**BRITISH AND FOREIGN MINING OFFICES.**

Messrs. PETER WATSON AND CO.,

18, AUSTIN FRIARS,

OLD BROAD STREET, LONDON, E.C.

BANKERS: THE ALLIANCE BANK (Limited).

Messrs. PETER WATSON AND CO.'S

BRITISH AND FOREIGN MONTHLY MINING NEWS—STOCK

AND SHARE INVESTMENT NOTES—MINES, MINERALS, AND

METAL MARKETS—SHARE LIST, No. 875, VOL. XVII., for JULY

month, will shortly be ready, and will be sent to customers on application.

Annual Subscription..... 5s. | Single Copy..... 6d.

**MR. ALFRED E. COOKE, STOCK AND SHARE DEALER,**

3, GEORGE YARD, LOMBARD STREET, E.C.

ESTABLISHED 1853.

(NEARLY 19 YEARS IN OLD BROAD STREET.)

TELEPHONE No. 10,338.

MR. ALFRED E. COOKE can SELL the following shares, or any smaller market-

able number at prices affixed FREE OF COMMISSION:—

50 Almada, 3s. 6d. 50 Home Mines, 13s. 9d. | 50 Oscar, fully pd., 11s. 6d. || 50 Balkis, 1s. 6d. | 70 Indian Consol., 4s. | 60 Potosi, 5s. |
10 Bratsberg, 17s. 6d.	30 La Plata (New), 5s. 6d.	30 Prince of Wales.
40 Callao Bis, 12s.	25 Leadhills, £1 11s. 6d.	40 Ruby, 4s. 9d.
25 Chile Gold, 3s. 6d.	80 Lisbon-Berlyn, 1s. 6d.	10 Schwab's Gully, £3 17s. 6d.
50 Colombian Hydraulic, 5s.	40 Mounts Bay, 2s. 9d.	5 Tollima A, £3 17s. 6d.
80 California Gold, 3s.	20 Mysore Gold, 3s. 6d.	40 Tresavean, 3s. 6d.
100 Cartago, f. pd., 3s. 3d.	30 New Callao, 3s.	10 United Mexican, £3.
90 Colorado, 1s.	100 Nouveau Monde, 1s. 3d.	30 Victoria Gold, 5s. 6d.
100 Denver, 1s.	50 Nundydoo, 10s. 3d.	40 Van, 22s.
10 East Blue Hills, 4s.	25 Old Shepherds, 5s.	40 West Callao, 2s. 3d.
100 East Wh. Rose, 3s. 6d.	30 Organos, 7s. 9d.	5 West Kitty, £7 5s.
10 Ecton, £1 17s. 6d.	15 Orita, 11s. 9d.	10 Wheel Crebor, 24s. 9d.
1 El Callao, 41s. 10s.	60 Oscar, vendors, 6s. 6d.	15 Wheel Metal, 17s. 6d.
50 Hoover Hill, 6s.		

MANY of the ABOVE SHARES can be supplied for END of JULY account on

CASH DEPOSIT of TEN PER CENT.

CONSOLS.

RUSSIAN BONDS.

AMERICAN STOCKS.

RAILWAY STOCKS.

BUSINESS TRANSACTIONS AT CLOSEST CURRENT PRICES, FREE OF

COMMISSION, in all STOCK EXCHANGE SECURITIES either for SPECULATION

OR INVESTMENT.

ALFRED E. COOKE, 3, GEORGE YARD, LOMBARD STREET, LONDON.

ESTABLISHED 1853.

BANKERS: ROYAL EXCHANGE (Limited), London.

**MR. JAMES STOCKER, STOCKBROKER,**

2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.

Has Special Business in the following for cash or settlement by arrangement

free of commission:—

70 Almada, 3s. 6d. 55 Frontino, 10s. 6d. | 80 Orita, 27s. 6d. || 70 Akankoo, 4s. 9d. | 90 Glenrock, 3s. 3d. | 45 Organos, 7s. 9d. |
100 Balkis, 1s. 6d.	40 Great Holway, 20s.	35 Oscar Gold, 12s.
40 Bratsberg, 17s. 6d.	30 Great Laxey, £8 17s. 6d.	40 Panuclillo, 47s. 6d.
60 Birdseye, 3s. 6d.	30 Home Mines, 13s. 9d.	20 Potosi (New), 5s.
60 Cartago, 3s. 3d.	60 Hoover Hill, 6s.	40 Polbrean, 13s. 6d.
100 Californian, 3s. 6d.	100 Ind. Consol., 4s.	50 Prince of Wales.
80 Callao Bis, 12s.	50 Kohinoor, 2s. 3d.	30 Richmond, £3.
45 Carn Camborne, 3s.	50 La Plata, 4s. 6d.	70 Ruby, 3s. 6d.
75 Chile Gold, 3s. 6d.	30 Leadhills, 3s. 6d.	30 Rio Tinto, £10 10s. 9d.
100 Chontales, 2s. 6d.	80 Lisbon-Berlyn, 1s. 6d.	20 Schwab's Gully, £2 17s. 6d.
50 Colombian, 12s.	30 La Trinidad, 4s. 10s.	45 Standard Lead.
55 Copper Queen, 5s.	60 Metal and Flow, 10s. 6d.	60 Transvaal Gold, 1s. 9d.
60 Cartago, 3s. 3d.	40 Montana, 3s. 6d.	25 Tollima A, £3 17s. 6d.
70 Devala, 3s. 6d.	60 Mounts Bay, 2s. 9d.	40 Tollima B.
100 Denver, 1s.	50 Mysore Gold, 3s. 6d.	30 Trevaunance, 37s. 6d.
3 El Callao, £41 10s.	65 New Callao, 2s. 9d.	25 Utd. Mexican, £3 25s. 21s.
30 East Blue Hills, 4s.	75 Nouveau Monde, 1s. 3d.	40 Van, 20s. 6d.
50 East Rose, 3s. 6d.	60 Nundydoo, 9s. 6d.	50 Victoria Gold, 5s.
150 Eberhardt, 3s. 6d.	60 New Emma, 9s. 3d.	60 West Callao, 2s.
100 Ecton, 20s.	70 Old Shepherds, 4s. 6d.	
100 Montana, 150 Colombian.	100 Frontino.	
70 Nundydoo.	40 Bratsberg.	50 Orita.

Railways, Foreign Bonds, Gold and Silver Mines, Miscellaneous Shares, and

all Stock Exchange Securities.

ESTABLISHED 1851.

BANKERS: LONDON AND WESTMINSTER.

**JOHN B. REYNOLDS,**

STOCK AND SHARE DEALER,

37, WALBROOK, LONDON, E.C.

Business transacted at net prices, and for cash in all classes of stocks and

shares.

SPECIALITY.

Cornish Mines, excepting those worked on the Limited Liability principle.

A favourable selection of mines for speculation can now be made.

Reliable information can be obtained concerning the Saint Agnes Mines—

worked upon the "No Credit" principle—especially Polbrean, Trevaunance, and

West Polbrean.

**CHARLES J. SIMS, STOCK AND SHARE DEALER,**

3, UNION COURT, OLD BROAD STREET, LONDON, E.C.

ESTABLISHED 28 YEARS.

**BEAZLEY AND CO., STOCK AND SHARE DEALERS,**

6 AND 7, COLEMAN STREET, LONDON, E.C.

BRITISH AND FOREIGN MINE SHARES not quoted below BOUGHT and

SOLD at CLOSE MARKET PRICES.

ALL BUSINESS DONE AT NET PRICES FOR CASH, ACCOUNT, OR

FORWARD DELIVERY.

SELLERS and BUYERS should send FIRM ORDERS at once.

CLOSING PRICES, FRIDAY, 26th JUNE, 4 P.M.

Buyers. Sellers. Buyers. Sellers.

Almada..... £ 0 2 6 ... £ 0 3 3 Mysore..... 1 11 3 ... 1 13 0 || Bratsberg..... 0 17 0 ... 0 19 0 | Montana..... 1 12 6 ... 1 15 0 |
Balkis..... 0 1 0 ... 0 1 6	Nundydoo..... 0 9 0 ... 0 10 6
Callao Bis..... 0 11 0 ... 0 12 6	Nouveau Monde..... 0 1 0 ... 0 2 0
California..... 0 2 6 ... 0 3 3	New Potosi..... 0 4 6 ... 0 5 6
Colombian..... 0 10 6 ... 0 11 6	New Chile..... 0 3 0 ... 0 3 9
Colorado..... 1 15 0 ... 1 17 6	New Callao..... 0 2 0 ... 0 3 3
Cartago, f. p..... 0 2 6 ... 0 3 6	Oscar, vendors..... 0 5 0 ... 0 7 0
East Wh. Rose..... 0 2 9 ... 0 3 6	Oscar, fully paid..... 0 10 0 ... 0 11 9
Eberhardt..... 0 3 3 ... 0 4 0	Orita..... 1 2 0 ... 1 4 0
East Blue Hills..... 1 15 0 ... 1 17 6	Organos..... 0 6 0 ... 0 8 0
Frontino..... 0 7 6 ... 0 8 9	Oregum..... 0 1 9 ... 0 2 6
Killifreth..... 0 14 0 ... 0 16 0	Prince of Wales..... 0 7 0 ... 0 8 0
Home M. Trust..... 0 12 3 ... 0 13 8	Ruby..... 0 3 6 ... 0 5 0
Hoover Hill..... 0 5 3 ... 0 6 3	Schwab's Gully..... 2 18 9 ... 3 1 3
Indian Consol..... 0 3 6 ... 0 4 0	Utd. Mexican..... 2 17 6 ... 3 1 0
Lisbon Berlyn..... 0 1 0 ... 0 1 6	West Callao..... 0 2 0 ... 0 2 6
La Plata..... 0 4 6 ... 0 5 6	Wheel Crebor..... 1 0 0 ... 1 2 8
La Trinidad..... 4 0 0 ... 4 10 0	Wheel Metal..... 0 15 0 ... 0 17 6

INVESTORS should send for BEAZLEY and CO.'S LIST of CLOSEST

PRICES, which will be forwarded on receipt of STAMPED DIRECTED

ENVELOPE.

**CASH PURCHASES.—SPECIAL FACILITIES for IMMEDIATE SETTLEMENT and DELIVERY of SHARES.**

Shares supplied for FORWARD DELIVERY on BEST POSSIBLE TERMS.

BEAZLEY and CO., 6 AND 7, COLEMAN STREET, LONDON, E.C.

**METALS—FRIDAY, 4 P.M.—TIN, £93 10s. 0d. to £94 0s. 0d.;**

**COPPER, £44 7s. 6d. to £44 15s. 0d.; IRON, 40s. 11d.**

BEAZLEY and CO., 6 AND 7, COLEMAN STREET, LONDON, E.C.

**MR. WILLIAM H. BUMPUS, STOCK BROKER**

AND MINING SHARE DEALER,

44, THREADNEEDLE STREET, LONDON, E.C.

[Established at this Address in 1867.]

BUSINESS transacted in ALL STOCK EXCHANGE SECURITIES,

MINING and MISCELLANEOUS SHARES of every description.

An INVESTMENT LIST free on application.

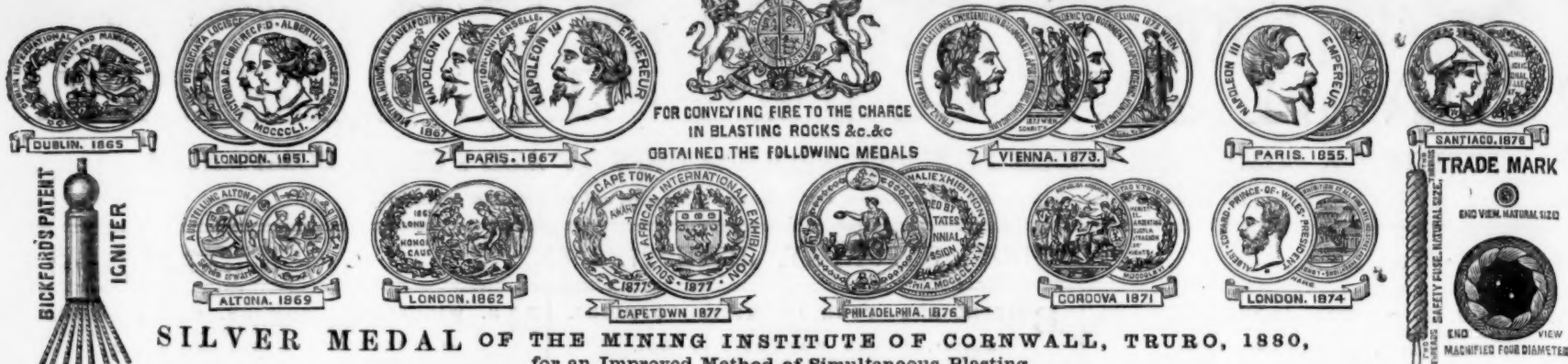
SPECIAL BUSINESS in the undermentioned:—

200 Almada, 2s. 6d. 200 Glenrock, 3s. 9d. | 100 Prince of Wales, 8s. || 100 Akankoo, 5s. 3d. | 150 Hoover Hill, 6s. | 30 Panuclillo, 47s. 6d. |
250 Balkis, 1s. 6d.	250 Indian Cons., 3s. 9d.	15 Rio Tinto, £10 10s.
50 Bratsberg, 17s. 6d.	100 Kohinoor B, 3s. 6d.	25 Richmond, £3 1s. 3d.
150 Chontales, 2s. 3d.	50 Killifreth, 3s.	10 Roman Gravel, £3 17s. 6d.
25 Copiapo, £2 8s. 9d.	200 Lisbon-Berlyn, 1s. 6d.	15 So. Condurrow, £7 17s. 6d.
10 Cape Copper, £23.	50 Leadhills, 3s.	40 Schwab's Gully, £3 17s. 6d.
150 Colombian, 12s.	250 La Plata, 4s. 9d.	100 South Caradon, 5s.
200 Callao Bis, 11s. 9d.	100 Mysore, 33s.	30 Trevaunance, £2.
100 California, 3s.	20 Mason & Barry, £9 13s.	10 Tharsis, £25 17s. 6d.
3 Dolcoath, 3s.	100 Mounts Bay, 3s.	20 Utd. Mexican, £3 13s.
150 Denver, 1s. 3d.	85 New Emma, 10s. 6d.	50 Van, 22s.
20 Devon Consols, £3.	150 New Chile, 3s. 9d.	100 W. Godolphin, 22s.
40 De		

FIRST AWARD.  
SYDNEY. 1879.

# BICKFORD'S PATENT FUSES

FIRST AWARD.  
MELBOURNE, 1881.



FOR SIMULTANEOUS BLASTING

SILVER MEDAL OF THE MINING INSTITUTE OF CORNWALL, TRURO, 1880,  
for an Improved Method of Simultaneous Blasting.

## BICKFORD, SMITH AND CO.,

THE INVENTORS, AND ORIGINAL PATENTEES AND MANUFACTURERS OF

### SAFETY AND INSTANTANEOUS FUSES AND IGNITERS

FOR USE IN ALL BLASTING OPERATIONS AND SPECIALLY PREPARED FOR ANY CLIMATE

Note the **TRADE MARK**: Two Separate threads through centre of Fuse.

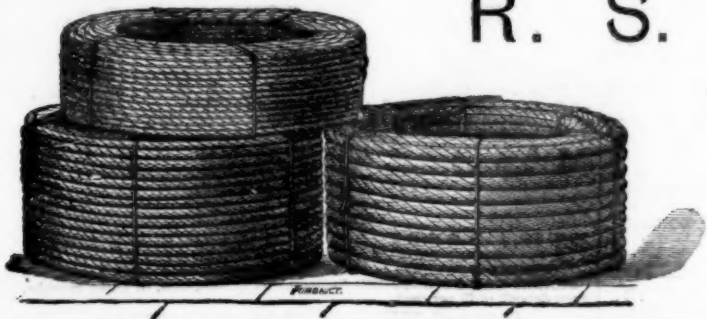
BICKFORD, SMITH AND CO.'S Patent Igniters and Instantaneous Fuses for simultaneous blasting are being extensively used at home and abroad. This improved method is the cheapest, simplest, and most dependable ever introduced for simultaneously firing any number of charges. For full particulars, see Descriptive Catalogue.

PRICE LISTS, DESCRIPTIVE CATALOGUES, AND SAMPLES TO BE HAD ON APPLICATION.

FACTORIES—TUCKINGMILL CORNWALL; AND ST. HELENS JUNCTION, LANCASHIRE.

HEAD OFFICE—TUCKINGMILL, CORNWALL.  
LANCASHIRE OFFICE—ADELPHI BANK CHAMBERS, SOUTH JOHN STREET, LIVERPOOL.  
LONDON OFFICE—85, GRACECHURCH STREET, E.C.

Every package bears Bickford, Smith, and Co.'s copyright label.



## R. S. NEWALL AND CO.,

Sole Patentees of Untwisted Wire Rope.

Iron & Steel Ropes of the highest quality for Collieries,  
Railways, Suspension Bridges, &c.

PATENT STEEL FLEXIBLE ROPES AND HAWSERS.  
IRON STEEL, AND COPPER CORDS. LIGHTNING CONDUCTORS.  
COPPER CABLES of high Conductivity for Electric Light and Power.

London: 130, STRAND, W.C. Liverpool: 7, NEW QUAY.  
Glasgow: 68, ANDERSTON QUAY.  
MANUFACTORY: GATESHEAD-ON-TYNE.

## ROBEY & CO.

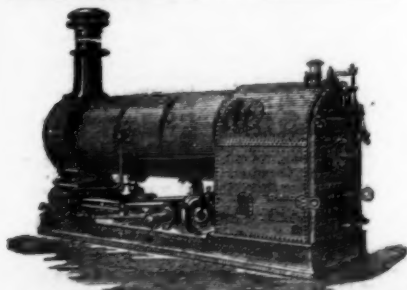
NOTICE TO COLLIERY PROPRIETORS, MINE OWNERS, &c.

The PATENT "ROBEY" MINING ENGINE is complete  
in itself, ready for putting down and setting to work,  
either as a Permanent or Temporary  
Winding or Pumping Engine.

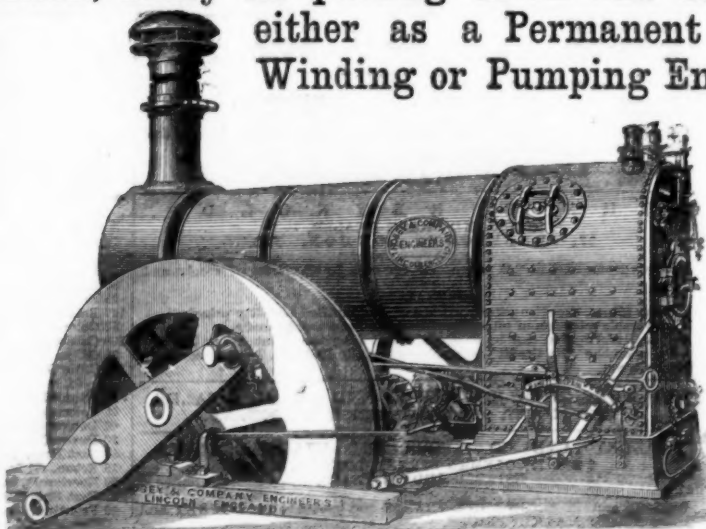


Robey's Superior Portable Engines,  
2½ to 50-h.p.

LONDON OFFICES:—  
117, Cannon Street, E.C.



The Improved Robey Fixed Engine and  
Locomotive Boiler Combined. 4 to 65-h.p.,  
and Compound Robey Semi-fixed Engine.



ALL SIZES KEPT IN STOCK FROM 2½ TO 65-H.P. NOMINAL.

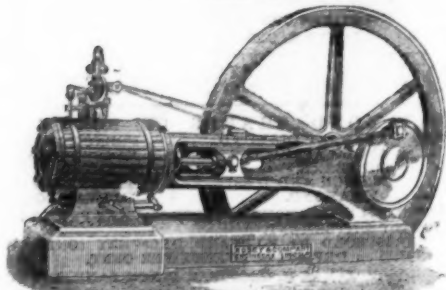
Please note this is the Original "ROBEY" Engine as designed  
and manufactured by Messrs. ROBEY and Co., of Lincoln. All  
others are mere attempts at imitation.

For particulars and prices apply to the Patentees and Sole Manufacturers—

ROBEY AND CO., GLOBE WORKS, LINCOLN, ENGLAND.



Robey's Vertical Stationary Steam  
Engine, 1½ to 16-h.p.



Robey's Horizontal Fixed Engines,  
4 to 60-h.p.

GAS, STEAM,  
WATER,  
AND

# Tubes.

GALVANIZED  
TUBES AND  
FITTINGS,

## PATENT LAP-WELDED IRON AND STEEL TUBES

For Marine and Locomotive Boilers, Hand-rails, Ship Pillars, Coils, &c.

TUBES AND FITTINGS FOR ALL ENGINEERING PURPOSES.

TAUNTON and HAYWARD, Star Tube Works, BIRMINGHAM.

105,000 ACCIDENTS,

FOR WHICH

TWO MILLIONS have been PAID as COMPENSATION by the  
RAILWAY PASSENGERS' ASSURANCE COMPANY,  
64, CORNHILL.  
ACCIDENTS OF ALL KINDS.  
Paid-up and Invested Funds... £260,000—Premium Income... £235,000  
CHAIRMAN—HARVEY M. FARQUHAR, Esq.

Apply to the Clerks at the Railway Stations; the Local Agents; or  
WEST END OFFICE—8, GRAND HOTEL BUILDINGS, CHANCERY CROSS;  
OR AT THE  
HEAD OFFICE—64, CORNHILL, LONDON, E.C.  
WILLIAM J. VIAN, Secretary.

MONEY LENT at EIGHT, NINE, and TEN PER CENT. on  
FIRST MORTGAGE of FREEHOLDS for IMPROVEMENTS and  
STOCKING said Freeholds in the province of Manitoba.  
Address, HERBERT G. JONES, Solicitor, 20, Masonic Hall, Toronto.

# R. HUDSON'S

## Patent Steel Trucks, Points and Crossings,

### PORTABLE RAILWAY, STEEL BUCKETS, &C., &C. GILDERSOME FOUNDRY, NEAR LEEDS.

Patented in Europe, America, Australia, India, and British South Africa, 1875, 1877, 1878, 1881, and 1883.

N.B.—The American, Indian, Australian, and Spanish Patents on Sale.  
23.—PATENT TRIPLE CENTRE SIDE TIP TRUCK.

Registered  
Telegraphic Address:  
"GILDERSOME,  
LEEDS."  
A. B. C. Code used.

(Near Gildersome Station, G.N.R.,  
Main Line, Bradford to Wakefield  
and London, via Laisterdyke and  
Ardsley Junctions.)

TELEPHONE No. 14, LEEDS  
EXCHANGES.

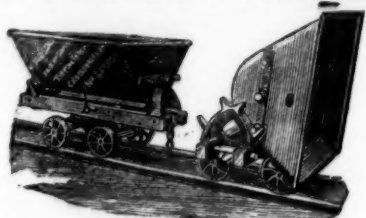
17.—SELF-CONTAINED TURNTABLE,  
Requiring no Foundations.



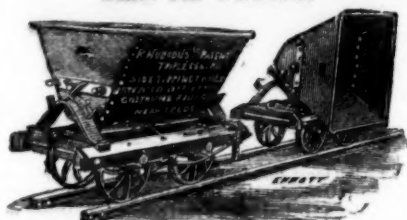
1.—PATENT STEEL END TIP  
WAGONS.



2. PATENT UNIVERSAL TRIPLE-CENTRE  
STEEL TIPPING TRUCK,  
Will tip either side or either end of rails.



3.—PATENT TRIPLE-CENTRE STEEL  
SIDE TIP WAGONS.



4.—PATENT STEEL PLATFORM OR  
SUGAR CANE WAGON.



5.—PATENT STEEL CASK.

As supplied to H.M. War Office for the late war in Egypt.  
DOUBLE the STRENGTH of ordinary Casks without any  
INCREASE in weight.  
(Made from 10 gals. capacity upwards to any desired size.)

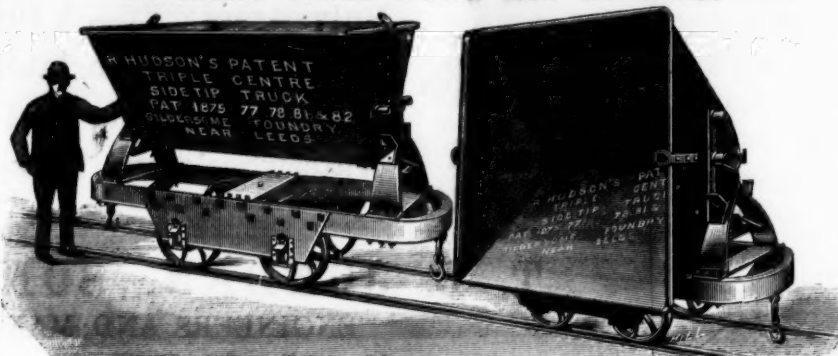


6.—ROBERT HUDSON'S  
PATENT IMPROVED IRON SMITH'S HEARTH.  
NO BRICKWORK REQUIRED.

A Special quality made almost entirely  
in STEEL, effecting a GREAT SAVING  
IN WEIGHT.



Large numbers in use by all the principal Engineers in this  
country and abroad.

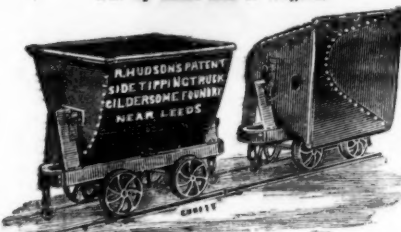


One man can tip any weight with ease.

7.—PATENT STEEL MINING WAGONS.



8.—PATENT DOUBLE-CENTRE STEEL  
SIDE TIP WAGONS.  
Will tip either side of Wagons.



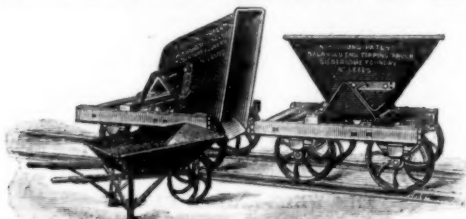
10.—LEFT-HAND STEEL POINT  
AND CROSSING.



11.—RIGHT AND LEFT-HAND  
STEEL POINT AND CROSSING.



24.—R. H.'s PATENT BALANCED END TIP.

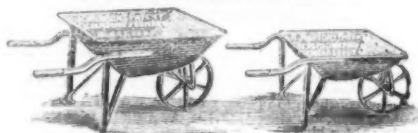


18.—"AERIAL" STEEL WINDING  
TUB.



Largely employed in the South African  
Diamond Fields.

16.—PATENT STEEL WHEELBARROWS.  
Made to any Size.  
Lightest and Strongest in the Market.

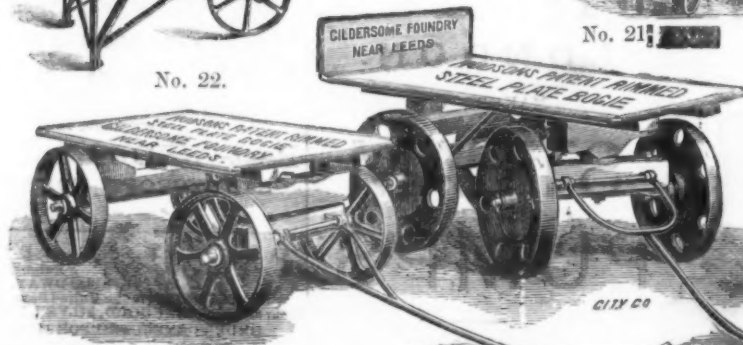


A great success.

25.—PIG-IRON BARROW,  
R. H.'s Patent



No. 22.



19.—PATENT STEEL CHARGING  
BARROW.  
Double the strength and lighter than ordinary  
Barrows.



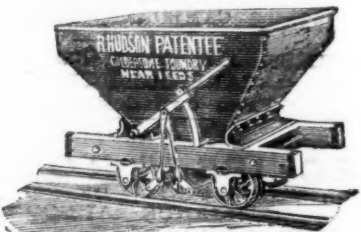
No. 21

Upwards of 25,000 of these Trucks and  
Wagons have been supplied to the South  
African Diamond Mines; American,  
Spanish, Indian, and Welsh Gold, Silver,  
Copper, and Lead Mines; Indian and  
Brazilian Railways, and to Railway Con-  
tractors, Chemical Works, Brick Works,  
and Coal and Mineral Shippers, &c., &c.,  
and can be made to lift off the underwork,  
to let down into the hold of a vessel, and  
easily replaced. They are also largely used  
in the Coal and other Mines in this country,  
and are the **LIGHTEST, STRONGEST,**  
and most **CAPACIOUS** made, infinitely  
stronger and lighter than wooden ones,  
and are all fitted with R. H.'s Patent  
"Rim" round top of wagons, requiring no  
rivets, and giving immense strength and  
rigidity. End and body plates are also  
joined on R. H.'s patent method, dispens-  
ing with angle-irons or corner plates.

CAN BE MADE TO  
ANY SIZE,  
AND TO ANY  
GAUGE OF  
RAILS.



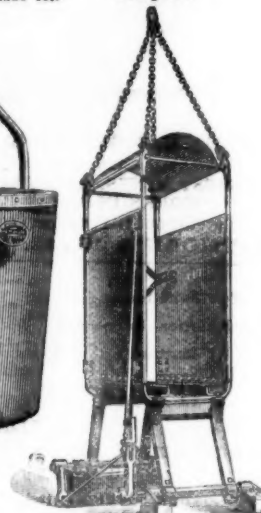
13.—PATENT STEEL HOPPER  
WAGON.



14.—SELF-RIGHTING  
STEEL TIP BUCKET.  
The "Catch" can also be made self-  
acting if desired.



15.—R. HUDSON'S  
Patent Steel Cage  
and "Fallers," &c.,  
complete.



FIRST SILVER MEDAL, ROYAL CORNWALL POLYTECHNIC  
—Highest Award for Effectiveness in Boring, and Economy in  
the Consumption of Air.

JUBILEE EXHIBITION, 1882.  
THE PATENT

## "CORNISH" ROCK DRILL.

FIRST  
SILVER  
MEDAL,  
MINING  
INSTITUTE  
OF  
CORNWALL.



FIRST  
AWARD  
BORING  
CONTEST  
DOLCOATH  
MINE,  
DECEMBER,  
1881.

Prices and particulars on application to the Manufacturers,  
**HOLMAN BROTHERS,**  
CAMBORNE FOUNDRY AND ENGINE WORKS,  
CAMBORNE, CORNWALL.

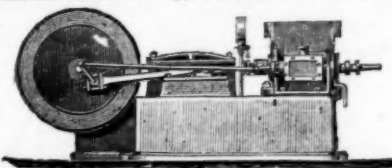
**ENGINES, AIR COMPRESSORS, TUNNELLING  
CARRIAGES, TRIPODS, &c.,**  
From own design, or to order.

## THE PATENT "ECLIPSE" ROCK-DRILL

"RELIANCE AIR-COMPRESSOR."

First Silver Medal awarded at Boring Competition, East Pool Mine, Sept. 1883.

PRIZE MEDAL,  
HIGHEST AWARD.



PARIS EXHIBITION,  
1878.

ARE NOW SUPPLIED TO THE  
ENGLISH, FOREIGN, AND COLONIAL GOVERNMENTS

And are also in use in a number of the  
LARGEST MINES, RAILWAYS, QUARRIES, AND HARBOUR  
WORKS IN GREAT BRITAIN AND ABROAD.

FOR ILLUSTRATED CATALOGUE AND PRICES, apply to—  
**HATHORN & CO., 22, Charing Cross, London, S.W.**

For Excellence  
and Practical Success  
of Engines.



Represented by  
Model exhibited by  
this Firm.

**HARVEY AND CO.,**  
(LIMITED)

**ENGINEERS AND GENERAL MERCHANTS,**  
HAYLE, CORNWALL.

LONDON OFFICE—186, GRESHAM HOUSE, E.C.

MANUFACTURERS OF  
PUMPING and other LAND ENGINES and MARINE STEAM ENGINES  
of the largest and most approved kinds in use, SUGAR MACHINERY,  
MILLWORK, MINING MACHINERY, and MACHINERY IN GENERAL.  
SHIPBUILDERS IN WOOD AND IRON.

MANUFACTURERS OF  
**HUSBAND'S OSCILLATING STAMPS.**

These Stamps are now working on the "Owen Vean" Mine, near Marazion,  
and may be seen on application to Mr. Derry, the manager. Four heads stamp  
from 60 to 90 tons of tin stone, ordinary hardness, in 24 hours. The consumption  
of fuel is much less per ton of stone stamped than by the old system, and the  
wear and tear also much less. See Mr. Derry's paper (extract of which ap-  
peared in the Mining Journal of Nov. 1st, 1884) on these stamps read before the  
Mining Institute of Cornwall.

**SECOND-HAND MINING MACHINERY FOR SALE,**  
In Good Condition, at Moderate Prices—viz,

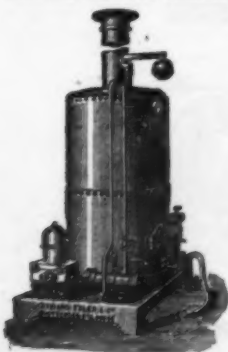
PUMPING ENGINES; WINDING ENGINES; STAMPING ENGINES,  
STEAM CAPSTANS; ORE CRUSHERS; BOILERS and PITWORK of  
various sizes and descriptions; and all kinds of MATERIALS required for  
MINING PURPOSES.

**HAYWARD TYLER & Co.**  
LONDON.

MAKERS OF

# STEAM PUMPS.

10 PRIZE MEDALS.



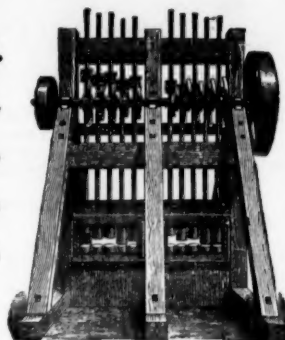
# MINING MACHINERY

For GOLD, SILVER, COPPER, and other Ores.



"ADELAIDE" ROCK DRILL.

Crushing and Dressing Machinery.  
Rock Drills and Air Compressors.  
Pulverisers (JORDAN'S PATENT) & Disintegrators.  
Wire Rope and Portable Tramways.  
Engines, Winding and Stationary.  
Waterwheels and Turbines.



CALIFORNIAN STAMPS.

**T. B. JORDAN, SON & COMMANS,**  
ENGINEERS AND MANUFACTURERS,  
Offices—52, GRACECHURCH STREET, LONDON, E.C.

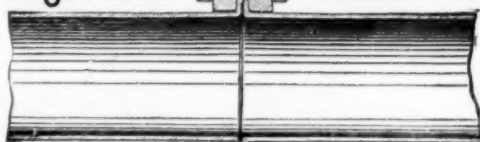
PATENT IMPROVED  
"INGERSOLL ROCK DRILL."  
MEDALS AND HIGHEST AWARDS  
SEVEN YEARS IN SUCCESSION,  
FOUR IN ONE YEAR.

American Institute, 1872.  
American Institute, 1873.  
London International Exhibition, 1874.  
Manchester Scientific Society, 1875.  
Leeds Exhibition, 1876.  
Royal Cornwall Polytechnic, 1876.  
Rio de Janeiro Exhibition, 1876.  
Australia Brisbane Exhibition, 1876.  
Philadelphia Exhibition, 1876.  
Royal Cornwall Polytechnic, 1877.  
Mining Institute of Cornwall, 1877.  
Paris Exhibition, 1878.

AWARDED FOR  
SIMPLICITY in CONSTRUCTION.  
AUTOMATIC FEED  
(Perfect success)  
GREAT STEADINESS.  
GREAT POWER.  
GREAT DURABILITY.  
GREAT EFFECTIVENESS.



Wrought-Iron Steam Tubes.



IMPROVED PATENT ROTARY

**Helico-Pneumatic Stamping Mills.**

Estimates given for Air Compressors and all kinds of Mining  
Machinery. For Illustrated Catalogues, Price Lists, Testimonials,  
&c., send to—

**LE GROS, MAYNE, LEAVER & CO.**  
60, Queen Victoria Street, London, E.C.

SILVER MEDALS AWARDED AT CORNWALL  
POLYTECHNIC, 1872 AND 1876.

THE WELL-KNOWN PATENT  
**SELF-ACTING ORE DRESSING  
MACHINERY,**

AS IN OPERATION at most of the LARGE MINES in the Kingdom  
and Abroad, is now supplied solely by the PATENTEE and MANU-  
FACTURER.

Mr. GEORGE GREEN, Mining Engineer,  
AT GREATLY REDUCED PRICES.

All descriptions of MINING MACHINERY, including GOLD and  
SILVER AMALGAMATING MACHINERY, complete. STAMP  
MILLS, WATER WHEELS, STEAM ENGINES, &c.

SPECIAL DESIGNS FOR EXPORT AND DIFFICULT TRANSIT.

Prices and particulars on application to the Manufactory,—  
ABERYSTWITH, SOUTH WALES.

# MINING MACHINERY,

SPECIALITY

FOR CRUSHING AND AMALGAMATING  
**GOLD and SILVER ORES**

As supplied to many important and successful Mines in Brazil,  
Venezuela, India, U.S. Colombia, &c.

**Best—SHOES and DIES—Cheapest.**  
**SANDYCROFT FOUNDRY CO. (LIMITED),**  
NEAR CHESTER.

**THE MINING RECORD,** Only \$5.00 a year  
Foreign Postage.  
61, BROADWAY, NEW YORK.  
the ONLY PAPER in the United States that gives FULL LATEST ACCOUNT  
from all the GREAT GOLD, SILVER, IRON, and COAL MINES of AMERICA.  
ORDERS EXECUTED FOR MINING STOCKS. Information free.  
ALEX. ROBT. ORISOLM, Proprietor.  
London Office—H. CARTER, Manager, 36, King William-street, London.

## THE "Barrow" Rock Drill

HOSKING AND BLACKWELL'S PATENT.



SUPPLY their CELEBRATED ROCK DRILLS, AIR COMPRESSORS, &c., and  
all NECESSARY APPLIANCES for working the said Drills.

The DRILLS are exceedingly STRONG, LIGHT, SIMPLE, and adapted for ends  
slopes, quarries and the sinking of shafts. They can be worked by any miner

Their DRILLS have most satisfactorily stood the TEST of LONG  
and CONTINUOUS WORK in the HARDEST KNOWN ROCK in  
numerous mines in Great Britain and other countries clearly proving  
their DURABILITY and POWER.

Hundreds of these Drills are now at work driving from three to  
six times the speed of hand labour, and at from 20 to 30 per cent.  
less cost per fathom. They can be worked by any miner.

For PRICES, Particulars and Reports of Successful and Economical  
Working, apply to—

**LOAM AND SON,**  
LISKEARD, CORNWALL.

## THE PATENT "Cranston" Rock Drill, AIR COMPRESSOR, AND DEEP BORING MACHINERY.

For prices, and particulars of rapid and economical work accomplished, apply to

**J. G. CRANSTON,**  
22, GREY STREET NEWCASTLE-ON-TYNE.

W. F. STANLEY

MATHEMATICAL INSTRUMENT MANUFACTURER TO H.M.S  
GOVERNMENT, COUNCIL OF INDIA, SCIENCE AND  
ART DEPARTMENT, ADMIRALTY, &c.  
MATHEMATICAL, DRAWING, and SURVEYING INSTRUMENTS of every  
description, of the highest quality and finish, at the most moderate prices.

Price List post free.  
ENGINE DIVISION TO THE TRADE.  
ADDRESS—GREAT TURNSTILE, HOLBORN, LONDON, W.C.

SUMMER TOURS IN SCOTLAND.

GLASGOW AND THE HIGHLANDS.  
ROYAL ROUTE via CRINAN AND CAL-  
DONIAN CANALS. Royal Mail Steamer COLUMBA  
for IONA, from GLASGOW daily at Seven A.M.,  
and from GREENOCK at Nine A.M., in connection  
with Express Trains from London and the south, conveying PASSENGERS for  
OBAN, FORT WILLIAM, INVERNESS, LOCHABE, SKYE, GAIRLOCH,  
STAFFA, IONA, GLENCOE, ISLAY, STORNOWAY, &c.  
Official Guide, 3d.; Illustrated, 6d. and 1s. by post; or at W. H. Smith and  
Son's Railway Bookstalls.  
Time Bill, with Map and Fares, free from the Owner, DAVID MACBRAYNE,  
119, Hope-street, Glasgow.

**CALIFORNIAN AND EUROPEAN AGENCY.**  
509, MONTGOMERY STREET, SAN FRANCISCO CAL.  
J. JACKSON, Manager.

ESTABLISHED OVER 50 YEARS.

# THE TUCKINGMILL FOUNDRY COMPANY,

TUCKINGMILL FOUNDRY AND ROSEWORTHY HAMMER MILLS,  
CAMBORNE, CORNWALL,

LONDON OFFICE: 85, GRACECHURCH STREET, E.C.

## ENGINEERS, IRON AND BRASS FOUNDERS,

AND SOLE MAKERS OF

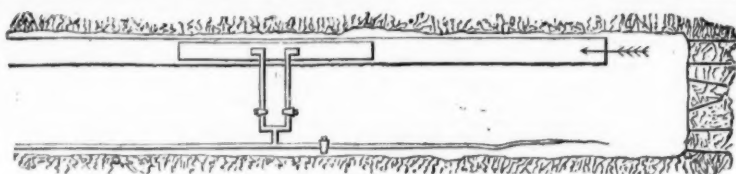
Teague's Patent VENTILATOR, Teague's Patent ROCK DRILL, Teague's Patent AIR COMPRESSOR, Teague's Patent FAN, Teague's Patent AIR ECONOMISER, Teague's PULVERISER and AMALGAMATOR, Stevens' and Cunnack's Patent PULVERISER; Sole Agents, for Devon and Cornwall, of Buckley's Patent PISTON, and Manufacturers of every description of PUMPING, WINDING, CRUSHING and STAMPING ENGINES, also all kinds of MINING MACHINERY, Shovels, and Miners' Tools, on the latest and most approved principles.

### TEAGUE'S PATENT

## DOUBLE-ACTING VENTILATOR.

TRADE MARK.

T.F.  
Co.



TRADE MARK.

T.F.  
Co.

### THE MINER'S FRIEND

Will clear all Tunnels and Ends from noxious fumes in the shortest possible time, 10 minutes only being required to clear the largest blast; distance no object.

FIRST SILVER MEDAL MINING INSTITUTE OF CORNWALL, 1881.

FIRST BRONZE MEDAL ALEXANDRA PALACE, 1882.

FIRST SILVER MEDAL AT JUBILEE EXHIBITION PALMOUTH POLYTECHNIC, 1883.

Its success is guaranteed. At work on the principal Mines in Cornwall.

Reference invited to Capt. JOSIAH THOMAS, Dolcoath Mine, Capt. BISHOP, East Pool Mine, and others.

FULL PARTICULARS AND TESTIMONIALS FORWARDED ON REQUEST.

## MANCHESTER WIRE WORKS.

NEAR VICTORIA STATION, MANCHESTER.

(ESTABLISHED 1790).

### JOHN STANIAR AND CO.,

Manufacturers by STEAM POWER of all kinds of Wire Web, EXTRA TREBLE STRONG for

### LEAD AND COPPER MINES.

Jigger Bottoms and Cylinder Covers woven ANY WIDTH, in Iron, Steel, Brass, or Copper.

EXTRA STRONG PERFORATED ZINC AND COPPER RIDDLES AND SIEVES.

PERFORATED IRON, STEEL, COPPER, AND ZINC PLATES IN VARIOUS DIMENSIONS AND THICKNESSES.

Shipping Orders Executed with the Greatest Dispatch.

### Original Correspondence.

#### MINING INDUSTRY IN NEW SOUTH WALES.

SIR,—Our daily newspapers have now a standard heading for a column of their daily issue, "The Defences of the Colonies." As all modern navies are composed of war-ships propelled by steam, we of New South Wales are peculiarly situated no doubt, but we would be first fixed upon by any enemy to secure, because of our coalfields. Whilst net-work of torpedoes are being laid down to protect Sydney and Newcastle harbours, Wallongong and Coal Cliff on the south, and Lake Macquarie on the north, were as open as possible, without any pretensions to protection. Coal could be had at any of these places without much difficulty within rifle shot of a war-ship riding at anchor.

It is pleasing indeed to see by this morning's newspaper that all the war scare is passed as an unbroken cloud, the taxpayer and commercial men are relieved from anxiety. We may benefit by this timely hint to place ourselves in proper state of defence for future protection. It is important to note, excepting New Zealand coal fields, no coal can be had within 20 days' steaming of our shores, unless imported.

SUNNY CORNER.—The difference of opinion between the smelters (Messrs. Lamont and Kahlo) and the Sunny Corner Silver Mining Company has been amicably settled and the "Pacific Smelter" and refinery are again going as briskly as marriage bells. This company are erecting additional furnaces at their mine. The Nevada Company have their furnaces now in full swing. In addition to the smelting furnaces at Sunny Corner, a new improved smelting furnace has been erected at Messrs. Hudson Brothers Works at Clyde, about 12 miles from Sydney by rail, and started operations on 2nd inst. Mr. Gafford was associated with Messrs. Lamont and Kahlo in the erection of the first "Pacific Smelter" at Sunny Corner, and has had a very large experience in silver smelting in America, has invented some improvements on the "Pacific" by doing away with the brick ports in the construction of the furnace. This at first sight to home readers will be considered of small moment; but we can assure them it is a most important one out here, as the brick to be had is really not a fire-clay brick, but more of a composition brick, at least that is what they would be called at home. This new furnace, then, is iron or steel water jacketed; instead of ending at the height of 4 ft. is carried up to the feeding floor 6 ft. higher than the "Pacific," and enables the water to be carried right up to the feeding floor. The inventor lays claim for this improvement a saving of fuel and also in transportation of material. The water enters the jacket under pressure, so that either water or steam pressure can be used. This is, we are told, the first and only machine in the world run under steam pressure and its advantages where water is scarce are obvious.

The ore used in the opening trial of this improved furnace is from the Silver King Silver Mining Company's claim at Sunny Corner. This company have sent down the most refractory of their base ores, containing 46 per cent. of silica to test the new smelter. This involves the use of slag as well as lead and lime in the making of the fluxes; but Mr. Gafford has no doubt of the result, and expresses the utmost confidence in the improvement he has made. This Australian smelter will no doubt be made use of largely by the claimholders of Sunny Corner, who have not yet a smelter of their own, as the distance from Sunny Corner to Clyde Works is under 100 miles. The Sunny Corner Silver Mining Company have just completed a trial survey of a line of railway to connect their mine with the Western at Pipers flat. A Bill will be introduced on the reassembling

of Parliament for the construction of it. The British Lion claim here is beginning to come to the front; assays of ores from this claim give 182 ozs. of silver and 13 dwts. of gold. The lode is 12 ft. wide; with the assistance of the new smelter at Clyde this claim no doubt in a short time will give a good account of itself.

SILVERTON.—Prospecting is still going on in this district, and fresh finds are being made giving payable stuff. A telegram just to hand of a rich find 60 miles—assaying 6000 ozs.—wants confirmation. The Broken Hills claim is still looking well, 3-28th share sold in the last week in April at 1033/4. 6s. 8d. each. The purchaser has already been offered a premium on them. Within these last few days some rich chlorides have been found on this claim, and has caused great excitement. It is looked upon as one of the richest claims in the district. The proof of the permanency of the rich lode on the Apollon and Company's claim has been realised by the striking of it; an assay from it gives 298 ozs. to the ton. The vertical shaft expects to strike the same lode at 326 ft. The Pinnacles Mining Company expect to have their new furnace in operation by the end of this month. The ore in this company's claim is increasing in richness as they get deeper. A new lode has been struck at 68 ft. in the Hen and Chickens at the vertical shaft. This is the second new lode in a fortnight in this claim.

BINGERA.—Mining matters are very quiet here. I saw a gentleman the other day from South Africa who had been visiting this diamond field, and he says from the want of water and proper appliances he fears for the success of the diamond mining here.

The following are the Sydney Stock Exchange prices on 13th May, 1885:—

MINING—COAL.			
Bulli	—	—	£11 10 0
Vale of Clwydd	£0 17 6	—	0 19 0
Walsend	37 0 0	—	—
Waratah	7 5 0	—	8 10 0
Stockton, 20s. paid	—	—	1 6 0
Stockton, 16s. paid	—	—	0 19 9
Newcastle	15 0 0	—	16 0 0
Burwood, 20s. paid	0 14 0	—	0 16 0
ditto, 10s. paid	0 6 6	—	0 8 6
Wickham and Bullock Island	0 19 6	—	1 0 6
ditto, 6s. paid	—	—	0 7 0
COPPER.			
Great Cobar	0 11 0	—	0 13 0
New Mount Hope	0 14 0	—	0 17 0
Nymagee	0 14 0	—	0 16 6
TIN.			
Wesley	—	—	0 3 0
GOLD.			
Band and Albion Consols,	—	—	—
Ballarat	3 3 0	—	3 6 0
SILVER.			
Sunny Corner (Limited) ...	4 7 6	—	4 15 0
Sydney, 14th May.	—	—	—

#### CARTAGO

SIR,—The directors of this company seem at last to have become alive to the fact that their affairs in this country were not being carried on by any means in a proper manner. The manager at the El Tigre Mine—a Mr. Smith, who seems to have had but little experience as a gold miner, appears to have set everybody at defiance since he has circulated reports that he did not care a jot about anybody connected with the company either in England or in Venezuela. He appears to have taken much greater care of the comfort boldly and spiritual of himself and his workmen than the interests of the company. It is the general opinion here that a great deal of very unnecessary putting down of old machinery has been done, and that but

little, if any, inspection of the property has ever been made. There seems also to be something very wrong about his accounts, as there is a report that the new manager has had to make a legal demand upon him for a balance of his accounts. It was always thought that he was unfit for his post and it was high time for his removal before he irretrievably ruined the company. The new manager, Mr. Skertchly, seems a very different sort of man, who has started the work anew on a scientific practical footing, and we trust that he will be able to bring us to a dividend in a few months. Mr. Skertchly is well and favourably known here, and his coming to replace the late manager has raised the hopes of all at least of those who are—  
Cuidad, Bolivar, May 29. — A TIGRE SHAREHOLDER.

#### CHONTALES COMPANY (LIMITED).

SIR,—In the report of this company, in the *Mining Journal* of June 20, the statement Mr. Palmer proceeded to refer to the "old, old story" of the pneumatic stamps, allow me, for the opportunity of shareholders who were not present, to state that I have repeatedly asked for information of the directors as to who was the purchaser of the pneumatic stamps and the stores, and as to what the stores consisted? I wrote the directors previous to the meeting that the manager of the mines would be present, and would be able to answer my questions. The questions were put, but not answered. The property he sold was the property of the shareholders. The Chairman said the board accepted the fullest responsibility for refusing to proceed with investigations. I had given the directors notice of questions I should ask, and expected to be informed upon—Whether the secretary on his own responsibility or by direction of one or more directors forwarded telegrams to a large shareholder on Dec. 31 last, after my proxies had been received at the office? Those proxies represented 27,000 votes. The telegram was to the effect that if I were elected the whole of the directors would retire; that such an act repeated ought to be made by the legislature a penal act, was the verdict passed by a very powerful and disinterested party, and endorsed by many a shareholder who read the article. Correspondence I alluded to having been removed from my having an opportunity of reading or extracting, shareholders are in the hands of the directors and secretary with a power that render them powerless.

The remark, that of my occupation of the time of the meeting, and with a delight to address at great length—we have two meetings a year—of time occupied at each, rather less than an hour and a-half, I can safely say I have never occupied the time of the meeting but with matter which the shareholders have an interest in, and no one regrets more than myself to have to bring before the shareholders the weak points in the management of our directors.

Exchange, Bristol, June 24.

W. B. PALMER.

#### GOLD ORE TREATMENT.

SIR,—I shall be glad if any of your numerous readers can inform me where in London I can see gold ores treated, and by what apparatus. I believe experiments are constantly being made by different inventors, and I should be thankful for an invitation to be present at any of these.

Working Men's Institute, High-street, Swansea.

G. W.

#### EAST BLUE HILLS.

SIR,—It is pleasant in these times of depression to see one mine doing well—East Blue Hills. Evidently the improvement is greater than was expected, or an engine of greater power would have been erected. The energetic management will soon remedy this. The agent is said to be a very cautious man, and it is to be hoped every one will be equally cautious. It would be deplorable indeed if the shares should go to a high price and this discovery be found to be only a bunch, instead of a lode. Such a discovery would tend to delay the good time for legitimate mining many believe is now at hand. It will be fortunate if this mine is not of the bunchy character of those on that side of the hill. West Kitty on the opposite side, on a capital of 36000, has paid in dividends in less than four years 23,400. Messrs. Watson Brothers have been fortunate in making discoveries lately. A short time since a discovery was made in D'Eresby and the shares rose to 75/ each. No doubt some will recollect these figures, although the price is now 20s. to 25s.

London, June 25.

L. S. D.

#### COLORADO MINING—THE PROSPECTOR'S WATER-WHEEL.

SIR,—About the year 1842 there appeared in the *Mining Journal* an engraving and description of my reversing water-wheel, the primary object of which was to dispense entirely with gear work, to hoist and pump direct from the axle of the wheel, and utilise a small stream of water; it was an overshot wheel 32 ft. diameter and 4 ft. breast; one half the buckets were arranged reverse from the other, so that by merely turning a pivoted horizontal guide sluice the water was thrown alternately on either set of buckets, causing the wheel to reverse its motion. On one end was a crank that actuated a flat-rod working the pumps from a V balance-bob. The reversing action did not interfere with the steady motion of the pumps. On the other side of the wheel was a lagged-up drum 5 ft. in diameter; it was a useful as well as a successful piece of machinery, and constructed at a moderate cost.

My recent invention is of different construction, although the object sought is nearly the same; but in this instance no standing pumps are required, as the mine can be kept perfectly free from water without them, let the quantity be what it may, and even much better. Those familiar with mining in the Rocky Mountains are acquainted with the hardships, trials, endurance, and vexations that beset the prospector—the pioneer of all our great metalliferous wealth and industries—

"Of his joys and his sorrows, or how a man fares,

Very few know, and nobody cares."

I wish, however, in this brief notice to say that nearly all our mines are first discovered by a band of venturesome, stalwart miners, who explore the deep ravines and fastnesses of the mountains in search of the coveted hidden treasure—gold. Two or three men join together and call themselves "pardners," with their blankets and cooking utensils, which consists of a kettle, frying pan, and a few tin cups, with their tools, rifle, and provisions, forms their "kit;" this they pack on a Jack (donkey), and each with a good burden on his back sally forth into the dreary wild solitudes of the Rockies; they generally take the creeks and examine the gravelly beds, proving it by panning out such parts of the sand that shows a "colour," if it does they make a pitch and commence digging in doing this they often strike a lead, which sometimes results in the discovery of a lode, as they often cross the creek; and as the back is generally in a decomposed state, carries free gold, they now shade upon it until it enters the cliff or the rocky declivity of the ravine. The lode may be from 6 in. to 16 ft. in thickness, impregnated with copper, lead, gold, and silver, which it carries nearly up to the surface, the free gold is in the gossans and cellular quartz, and can be readily pounded down on a flat rock with a hammer, and the gold panned out in a bateau or pan. Being now assured they have made a strike they stake out a claim 1500 ft. long by 300 ft. wide, and give it a name. One of them now starts off to the county town, and has it recorded in their joint names. The other two remain and still keep working, thus holding possession. The work they do secures the property for one year. A notice board is now nailed up on a tree, giving the names of the locators, the lode, and date of discovery. This done, they can now go on again exploring for another mine, which they generally do, and I have known three or four good ones being found in one season. But their troubles now commence, for in sinking their discovery shaft, which is generally on the underlay of the lode, and not far from the creek, the water becomes very troublesome, and as they only possess a windlass and bucket to keep it out, the labour is so severe, that they frequently have to abandon it, although rich and productive. I am cognisant of many cases of this kind, and have often felt sadly grieved to think those poor, deserving, hard-working men should lose their property for want of a little help in the hour of need, which, if obtained, would realise a competence for each of them. To aid in the prevention of such sad losses, I have introduced my new prospectors' water-wheel, which can be made by any

intelligent miner on the spot, and at a mere nominal cost. The wheel is an undershot, half-breast will do, with only a 6 ft. fall of water, and erected close to the creek. It may be from 10 to 20 ft. diameter, 3 ft. breast, made of rough-hewn timber, which is always abundant in the creeks and hillsides. A log, 24 in. diameter, with two winged gudgeons forms the axle; about 800 ft. of  $\frac{3}{4}$  and  $1\frac{1}{4}$  in. board and 2 in. plank, with 50 lbs. of nails and spikes, completes the materials for a 16-ft. wheel and its flume; with the exception of this and the ropes, all the other costs nothing but the labour. On one side of the wheel the axle is cut out to form a double cone drum; it is 12 in. at smallest diameter, and 2 ft. at the other. The rope in winding-up forms a spiral; if it were made detachable it would be better, as the rope would not have to be taken off when no hoisting is needed, all that is required would be two more gudgeons and a clutch—about 3 cwt. of castings—but the elevator must be kept running all the time, night and day, to keep the water clear from the workings. To the arms of the wheel on the other side is a V-grooved segment pulley, 6 ft. diameter, for the driving rope of the elevator; the floats of the wheel are 2 ft. apart, of a pentagonal shape, 3 ft. by 1 ft. in the rectangle part, and 1 ft. at the apex of the triangle, giving an area of  $4\frac{1}{2}$  superficial feet. They are made of two thicknesses of  $\frac{3}{4}$  in. board, placed with the grain of each adversely and rivetted on the upper edge. This keeps the angular part strong and rigid; sheet-iron would be better and cheaper in the end. A backing of thin board encloses the floats and forms tight buckets. The face of the wheel runs in a circular raceway of the same shape as the floats. It is a sector of the circumference. It is fitted as close as consistent with safety. The flume passes around three sides of the wheel. In the shaft is fixed an elevator with scoop buckets attached to a square link chain passing over an octagonal pulley at the collar of the shaft. It is driven at an required speed from the pulley on the wheel. The capacity of the buckets and their running speed is arranged sufficient to keep the mine in fork. The slower they work the better. The quantity of water in a shallow shaft is seldom over six barrels, or 240 gallons per hour. The mine ditch is taken sufficiently far up the creek to obtain a clear 6 ft. fall. A stop-gate shuts off the water when the wheel is not running. With this head of water a 16 ft. wheel unloaded makes 12 revolutions per minute. The first coil of the lifting rope is on the smallest part of the cone, which is 3.146 ft. in circumference, and thus runs at a speed of  $37\frac{1}{2}$  ft. per minute; at its greatest diameter—2 ft., the circumference is 6.28 ft. when the rope runs at  $75\frac{1}{2}$  ft. per minute. This is its maximum, with a drum and wheel of the size here recommended; if a greater speed is required it is only necessary to lay up the drum to the diameter necessary to obtain it. The wheel at starting only makes 3 revolutions, lifting the kibble at the rate of 10 ft. per minute. The effective power of an undershot wheel must not be taken to exceed 52 per cent. of the velocity of the effluent water, calculated thus— $\sqrt{6 \text{ ft.}} = 2.48 \times 8 = 19.6 \text{ ft. per second} \times 82 \text{ per cent.} \times 60 = 611.52 \text{ per minute} \div 50.265$ . The circumference of the wheel equals 12 revolutions. With the buckets full the quantity of water is 9 cubic ft., weighing 562½ lbs., which with a  $7\frac{1}{2}$  ft. leverage will exert much more power than is ever required for a shallow mine.

Mode of operation at the shaft, which may be at any reasonable distance from the creek, are stretched 24-in. wire ropes with levers for lifting the two feed sluices or gates, one of which is on both sides of the wheel for giving alternate or reversing motion. The lander or shaftman pulls gently on the starting lever, which turns the water on the lifting side of the wheel. The full kibble at the bottom of the shaft is to hold 300 lbs. of ore or dead; as the water at first only strikes the apex of the float, the motion is very slow, gradually he increases the speed to its maximum of 75 ft. per minute; on the load nearing the collar of the shaft he slackens the speed, and when the kibble emerges he shuts down the feed sluice. The momentum given will cause the wheel to make half a revolution, which with what little water remaining in the buckets will take the kibble up 8 ft. above the floor, where it stops, for the wheel is still. He now attaches the landing hook, and reverses the motion of the wheel. The kibble on its descent caught by the landing hook and chain upsets its contents into the barrow or truck; only one revolution of the wheel is required for this as the rope is on the coil, which is  $6\frac{1}{2}$  circumference. No break is required to stop the wheel, and overwinding would only be caused by the carelessness of the lander. It will be thus seen the machinery is perfectly under control. The elevator requires no attention whatever; if the water is light it will keep the sump clear by running only one way—with the rising kibble the pulley runs loose on the back revolution, but by having a ratchet attachment on the pulley of the elevator lay shaft it will work continuously; it may also be done by having every alternate scoop bucket placed inverted.

On Sundays, or when the mine is idle, and the men away, they have only to set one of the feed sluice-gates at a certain gauge to give the elevator sufficient speed to keep the mine in fork, so that when they return to work they will find their working places dry and with good ventilation; thus no delay in resumption of operations. I am far advanced in age, but I will engage with my simple machinery alone to do the work of five men, which will be a saving of more than 50 per cent. on the working of a young mine; this is saying much for an old man, but I will engage to do it. With the exception of the ropes and elevator chain the entire cost of this structure need not exceed \$300 (say) 60/ sterling.

Alma, June.

CHARLES S. RICHARDSON, G.M.E.

#### A MINERAL EXHIBITION FOR 1886.

SIR,—Of the many Exhibitions held in various parts of the world since 1851 there has been but one that may have been termed a Mineral Exhibition, which was opened at Denver, Colorado, in 1882, and was then a marked success. The promoters of the Denver Exhibition succeeded in a short space of time in collecting a magnificent display of specimens and bulk samples of ores and minerals from the chief mining states and territories of America. The sight of such a magnificent collection was one not only highly interesting but not easily forgotten. It contained a marvellous display of mineral wealth from the State of Colorado and its neighbouring states and territories, as also specimens of other industries.

Would it not be advisable that advantages be taken of the forthcoming Exhibition of 1886 for the Colonies and India that a speciality should be made of its mineral production, and the processes adopted for obtaining the precious metals? It is true that other Exhibitions have occasionally had a few specimens of quartz in a glass-case or models of nuggets of gold and pyramids, to show the bulk quantity obtained in any colony, which although interesting to a certain few as something to look at, does not convey an impression to the general public of a lasting nature as to the value of our mineral resources in the Colonies, and the great importance of the gold mining industry as a means of creating new wealth, and the extension and development of trade, commerce, and industries in Great Britain. If the vast auriferous resources of the Australian and other Colonies were more generally known in Great Britain, and the profits derived and to be derived by the legitimate development of those resources better understood, much more intelligent interest would be given to the industry and the means whereby a more plentiful supply of gold can be obtained. To create a greater interest in the resources of our Empire a varied collection of the mineral wealth from all sections of it, accompanied with maps, plans, and general information, will be one of the most practical means to be adopted. I, therefore, suggest that an effort be made to get up a special display of the auriferous resources of the Colonies, with machinery and appliances in full work for crushing, cleaning, and retorting of gold from quartz and other matrix, as also for treating of silver and other ores. The mere looking at working models is not very interesting to the sight-seeing public nor satisfactory to the observing and intelligent enquirer into facts.

In 1877, when in Melbourne, I made the suggestion to the Victorian Commissioners of the Paris Exhibition of 1878 to send there a five-head stamp-mill, with all necessary apparatus and appliances for the treatment of gold quartz, and about 200 tons of quartz for treatment. The proposal was favourably received by the leading mining company and Mining Boards of the Colony, but the parsimony of the authorities at the time prevented its adoption.

Now that in the next Exhibition a speciality is being made of Colonial and Indian products, I can but think that there would be no exhibits more interesting and attractive than a grand display of gold quartz and other mineral wealth, with machinery in motion for its actual treatment. There would be no difficulty in obtaining from the various mining companies in Australia an ample supply of quartz to keep a 10 or 15 head stamp-mill running every working day and at special hours; the process of cleaning up one of the stamp-boxes, washing off, and retorting could be arranged for that would prove of exceptional interest to visitors generally, and a source of instruction and information to many thousands who never had, or may never otherwise have, the opportunity of seeing such an exhibit. From 500 to 1000 tons of quartz could be readily obtained from the leading gold mining companies of Australia, New Zealand, Canada, and India, each company's stone crushed and cleaned separately, and the actual results obtained made known, and its value returned to the company supplying the quartz.

An opportunity would then be given to inventors of gold-saving machines to test their inventions practically, by attaching them to the ends of the riffle-tables as now commonly used. A display of mineral wealth from our colonies, and especially of gold and silver ores, with the modes of treatment would, I am satisfied, be one of the most attractive exhibits that can be collected and shown in the forthcoming Exhibition. Any gentlemen interested in the development of the auriferous resources of our Colonies and India, and who are disposed to co-operate in making arrangements for making an interesting and instructive display of mineral wealth, and its mode of treatment in a thoroughly practical way at the next Exhibition, I shall be pleased to communicate with, for the further consideration of the subject, and any letter addressed me to your care shall receive attention.—London, June 24.

THOMAS CORNISH.

#### DOLCLETWR AND LLAIN HER COPPER AND LEAD MINES (LIMITED), TALIESIN, CARDIGANSHIRE.

SIR,—The success attending the opening of the Llain Her portion of this property having attracted the notice of mining capitalists, I was requested to give my opinion of its merits, but was not in a position to do so without giving it a careful inspection, which I was enabled to do by the courtesy of a large shareholder, from whom I obtained permission to do so, and met with every attention from the local manager, Captain Clint, at the mine. It is not my intention to enter into a detailed report of this property, but to describe matters in brief in order to show that a small capital properly expended is capable of producing most satisfactory results, and it affords me much pleasure to be able to state that at the small depth of 10 fms. under adit I saw a very rich lode of copper pyrites from 12 to 18 in. wide, solid, some of which I am persuaded would make a percentage of from 25 to 30, but which will probably dress up to from 14 to 16 per cent., besides other rich branches both of copper and lead ores throughout the vein, which is from 4 to 6 ft. wide, and has a good southern underlay. It was found necessary in order to carry on the present workings in a systematic manner to sink the engine-shaft under the adit level to the 10 upon the course of the lode, thereby proving the vein as it went deeper, and giving ample width and breadth for all purposes of drawing, pumping, ladder-road, &c., and a better engine-shaft I have not travelled through for many years. This engine-shaft is now in regular course of sinking from the 10 to the 20 fathom level, and which will be complete to the 20 in about three months, when that level should be passed forward through ore ground, seen at the 10 fathom level, for 60 fathoms long, and as the levels east and west from the engine-shaft advances slopes can be started from either end, and good profits should then result from the workings of the mine. I would also advise that the winze, 30 fathoms east of the engine-shaft, which is now down about 9 ft. under the adit, and worth about 25/ per fathom for copper, should be sunk as deep as the water would reasonably permit of doing so, in order to ventilate the workings and to stoop the ground east and west from it, both economically and advantageously. The ore ground at the 20 west will be ventilated by a winze sunk to the 20, and from which a level has started on good ore as well as at an intermediate level between the 10 and 20, and known as the 15, where excellent lead ore is now to be seen standing in the forebreast.

These workings are very properly abandoned for the present. As to continue them as before would be throwing away money without any adequate result, and all these points will be reached and properly developed by your present method of proceeding in a systematic and minerlike manner. Whilst the 20 levels are being pressed forward, the engine-shaft should also be deepened to the 35 fm. level without any delay, and with a full number of miners. In fact, in order to keep the property in a satisfactory state and to do justice to it, the engine-shaft should be sunk at least 20 fathoms every year, and levels passed through the ore ground for the entire length now opened on of 60 fathoms, so as to give 100 fathoms monthly for stooping. And if this advice is carried out the shareholders will reap a rich reward for the outlay required.

I do not for a moment mean to put the one or profitable ground as only 60 fathoms, it may be, and most probably will be found to be, three times that length, and I have no doubt in extending the levels east and west on its course it will intersect other known lodes in the grant, which may be the means of still further enriching it, and perhaps open out rich courses of ore on the lodes so intersecting it, when, of course, increased returns and profits would naturally result.

There is a 36 ft. diameter water-wheel on this portion of the mine, pumping and drawing, and a nice new ore flooring well laid out, and a good many tons of rich copper and lead ores on it. A grand sight coming from such a shallow mine. On the other portion of the mine there is a water-wheel 30 ft. diameter, an excellent crusher, and the dressing apparatus is being put into proper condition, and in a month or two all will be in order for making regular returns of copper and lead. Also a good office, smiths' and carpenters' shops, and other substantial buildings and sheds in good condition, and I sincerely congratulate the present shareholders on having obtained a really good property, and one that will no doubt claim the attention of capitalists to it at an early date, as with the present capital subscribed a very large percentage from profits must soon be forthcoming.

Goginan, Aberystwith, June 24.

ABRAHAM FRANCIS.

#### JURIES AT THE INVENTIONS EXHIBITION.

SIR,—Being credibly informed that Sir Hussey Vivian, M.P., the deputy-Chairman of the Jury on Group B (Metallurgy) is primarily interested in one of the amalgamation machines exhibited at the Inventions Exhibition, may I ask whether this fact does not disqualify that gentleman from giving any verdict upon the value of other gold saving apparatus there exhibited.—June 25.

GOLD.

#### SOME LAW QUERIES.

SIR,—Will you allow me through your valuable Journal to ask any of your correspondents if they would be good enough to give me any information as to the following:—1. What conveys a right to a lord of a manor to claim minerals, with a right to work them, beneath freehold land, situate in the same parish?—2. If he really does possess this right, is it by virtue of the annual payment to him of chief rent, or as it is sometimes termed quit rent?—3. If a lord of the manor has not been in the habit of taking up the royalty for a very long period, say, a century, beneath freehold lands, and the freeholders themselves have been in the habit of taking the royalty themselves, would the lord of the manor be able to establish his right?—4. What is considered a fair royalty for lead worked beneath the beach and foreshore? If you, or any of your correspondents, would furnish me with a reply I should feel great obliged.

Torquay, June 25.

JOHN THOMAS.

ACCIDENTS IN MINES COMMISSION.—A meeting of this Commission was held on Wednesday and Thursday at its offices, 2, Victoria-street, Westminster. There were present the Chairman, Mr. Warrington W. Smyth, F.R.S.; Sir Frederick Abel, C.B., F.R.S.; Mr. Thomas Burt, M.P.; and Professor Clifton, F.R.S.

## Trade Reports.

### CORNWALL.

June 25.—The smelters certainly are very anxious that the mining population should not be demoralised by the too rapid accumulation of wealth, and are doing the best they can to prevent such a very undesirable consummation. The attempt which has been made to account for their drop on Monday last is really not worth a moment's argument; nor need the fact that it can in any way disturb anticipations of continued improvement, or give rise to any despondent thoughts. Our confidence in the sustained advance of tin is not one whit affected by such a casual incident as this, which only emphasises once more the urgent need there is for the miners taking the matter into their own hands.

It is rather curious, however, in view of certain remarks made at South Frances account—whether humorous or not we can hardly pretend to say—that this drop should have been coincident with the announcement that Lord Salisbury had resolved to take office. It was pretty plainly asserted at South Frances that there was some direct connection between the accession of the Conservatives and the rise in tin, and that Mr. Gladstone might try to put it down again; and that this was not intended wholly as a joke on Capt. Craze's part appears evident from his denunciation of the men who had come into the district and tried to disturb the order of things now existing. It is quite certain, however, that a very serious change in this order is absolutely necessary, and that the levy of dues on profits is only one of the points. While the surest way to obtain the help of outsiders is to get out of the old ruts, and let them see that they have real security for their capital and a fair chance for its development.

Our difference with Capt. Craze on these general issues does not, however, prevent the ready recognition of his excellent practical work. There he certainly is in his element, and South Frances for many years to come is likely to bear testimony to the admirable manner in which it has been handled. The adventures may be congratulated most heartily on the manner in which the course has been turned. Dividends are now reached, and what is more, we believe that the chances are the end of the year will see our dividend mines at least trebled, if not quadrupled.

Wheal Grenville account and dividend is another most satisfactory feature; and, indeed, it is difficult, just at present, to find anything of the contrary character associated with mines that are being prosecuted in genuine earnest, though it is quite true that there are difficulties connected with more than one much-vaunted mining speculation.

The Newquay Mining Company has been fined for breaches of the Metalliferous Mines Act—one, the neglect of sending in plans of an abandoned mine—the Deer Park. It is not easy to understand how such blunders can be made at this time of day.

The Mining Division is to see a triple fight. Not only has Mr. Conybeare declared his intention of going to the poll, but Mr. Barker, though it is quite certain the latter has not the ghost of a chance. Probably there will be a local Conservative to complete the quartette, and then nobody would be able to predict the result. The muddle into which affairs have got is entirely the result of the want of opposition in West Cornwall for the past half-century, which has prevented the development of an organisation commanding general confidence.

In the Eastern, or Bodmin-Liskeard Division, which has also a very considerable mining interest—the Caradon and Hington—Colonel Edgecombe has undertaken to come out in opposition to Mr. Courtney, but there is no reason to think that he has any special qualification as a mining candidate, or that his views are likely to prove specially acceptable in the matter of progressive legislation. The elevation of Sir Hardinge Giffard to the Lord Chancellorship leaves the only district of Devon in which mining has any special importance—the Tavistock—for the present to the sole candidature of Lord Ebrington.

Mr. Rule's public examination did not elicit very much information. It seems that he had always left his books with his clerks to deal with; and that for the past 12 or 18 months transactions which he carried out for cash had not been entered. As to the extent of his transactions during the past 12 months, he could not tell to 1000/ or to 10,000/; but he had never in his life done a transaction in a mine unless he had carried it out. He did not know what capital he had 12 months ago, nor what balance he had at his bankers then. On other matters of detail, however, Mr. Rule was more definite. When he filed his petition he had, it appears, 15 shares in Wheal Owles, 10 in Blue Hills, four in Botallack, 40 in Camborne Vean, and six in West Tolgus; and there were 15 Grenvilles, on which he had borrowed 5/ a share from Mr. Gould, and 75 West Setons, on which the same gentleman had advanced 445/ in all. These shares are still in Mr. Rule's name, but the character of the lien was set forth clearly enough. On some other points further information will be sought at the adjourned examination on Saturday.

### NORTH AND SOUTH STAFFORDSHIRE.

June 25.—The turn of the quarter is causing a continued restriction in the deliveries of pig and manufactured iron. The enquiries coming forward, however, indicate the probability of a steady trade next quarter. Consumers of pig-iron are entering into contracts for future supplies, and they are of a good average extent. The prices at which they are concluded are not, however, satisfactory. Northampton pigs are changing hands at 38s., Derbyshire at 40s., Lincolnshire at 42s. 6d., and North Staffordshire, 41s. 6d., delivered. Marked bars are 7/ 10s.; second-class bars, 6/ 10s.; and common, 5/ 5s. The Coal Trade is without alteration on the week.

A meeting of the Arbitrators and Commissioners appointed under the South Staffordshire Mines Drainage Acts was held at Wolverhampton, on Wednesday, to hear appeals from mine-owners against the arbitrators' draft award for levying in the Tipton district a rate of 3d. per ton on fire-clay and limestone, and 6d. per ton on ironstone, coal, slack, and other minerals. The applications of about nine appellants for a graduated rate were heard, and the Court reserved its decisions.

The colliery dispute at Oldbury, to which we referred last week, in which the masters desired the workmen to pay an increased contribution—from 2d. to 3d. per week—towards the Employers' Liability Insurance Corporation, was settled on Saturday. A deputation waited upon the masters in order to prevail upon them to withdraw the request; but the masters refused, and said that if the men were dissatisfied they could leave the pit. A meeting of the miners was afterwards held, when it was resolved to fall in with the arrangement.

In North Staffordshire more animation appears in the manufacturing than in the house coal trade, though even in the manufacturing department the demand is not an average for this time of year. Competition for the business offering is keen, and prices are not satisfactory. At the domestic collieries only about half time is being made. Pig-iron makers are offering ironstone contracts, but the prices are not such as to tempt vendors. The iron trade remains in a rather tame condition, but manufacturers anticipate the ensuing quarter with

more hopefulness, believing that orders will then probably show some increase. Crown bars are quoted from 5l. 7s. 6d. to 5l. 12s. 6d., and plates at 6l. 17s. 6d. to 7l. 5s. delivered Liverpool.

The dispute at the Podmore Hall Colliery, near Newcastle-under-Lyme, has been brought to a satisfactory conclusion. At a meeting of the men it has been resolved to accept Mr. Craig's amended terms, which were that all working prices should remain as they have been in all places, subject, however, to a 10 per cent. reduction; and it was further resolved that the agreement should be tried for a month.

In order to reduce the wages of the miners by 12½ per cent. the masters of the Hanley and Bucknall Colliery recently gave notice to terminate all contracts. This was objected to by the men, but after some little demur they have now accepted a 10 per cent. reduction.

#### NORTH WALES, SALOP, AND CARDIGAN.

June 25.—The plans for the widening and deepening of the River Llyfni, in the Nantlle Valley, for the safety of the slate quarries, have been prepared by a Mr. James H. Lynde, C.E., of Manchester. In all the slate quarry districts trade is now good, but there is an almost total absence of fresh enterprise. Several of the paving sett quarries are active, but more are idle. This is a business that requires a close personal attention to details and small economies on the part of the owners. The extensive phosphorite deposits of Montgomeryshire are lying idle. This is a mineral industry which has nearly altogether left this country. The want of facilities for carriage in North Wales, and the onerous terms on which owners let their land in England have driven it to foreign countries, where it thrives. A glance at the mineral statistics of the United Kingdom will show the steady and rapid decline of the trade. Another former industry of North Wales—the quarrying of felspar for the manufacture of china—has also quite died out. So also with ironstone and manganese mines. These minerals cannot bear the heavy land carriage which has rested upon them. There is still a little, a very little, lead mining—the one great mine of the whole region being now the Roman Gravel. Saving the old mine at Drwys-y-Coed and a few trials around Snowdon, copper mining is also at an end.

It must be confessed that this is a gloomy picture. Still the Principality is prosperous. The men have found work in other industries—collieries, brickworks, chemical-works, ironworks, and engineering shops. The second of these trades—brickworks—has made rapid strides during the last 40 years. At the commencement of that period almost the only works were those on Buckley Mountain, and one near Oswestry, and now numerous most important works are scattered over the coal field, the great centre being at Ruabon, in North Wales, and Brosely, in Shropshire.

Although not busy the collieries are employed, and the men are all at work—the strike at Coleshill being at an end. The men having submitted to the masters terms. A collier at the Plaspower Colliery, near Wrexham, was fined by the magistrates, last Friday, 40s. and costs for having fired a shot without having received any authority to do so. There is not any fresh enterprise in colliery extension.

The authorities of the Board of Trade have informed those of the Manchester, Sheffield, and Lincolnshire Railway that they will not allow a bridge to be erected over the River Dee at Connah's Quay, with a less navigable opening than 140 ft. The Glyn Valley Tramway Extension Bill has been read a second time in the House of Commons. Legal sanction has been given to the scheme for the construction of the Cambrian Railway Company, and with some alterations the Wrexham and Ellesmere Railway Bill was passed. Strenuous opposition is to be given to the Dee Conservancy Bill through the remaining stages.

In Cardiganshire the Goginan Mine is being wound-up, and at the meeting at which it was decided to do this some cogent and appropriate remarks were made respecting rents and royalties. The Frongoch is producing and selling lead and zinc ores to a considerable extent, and the East Daron continues to obtain a good price for its lead, on account of the 30 ozs. of silver it contains. In the northern half of the Cardiganshire lead district nothing, or next to nothing, is being done, and the mines and machinery are for the greater part lying idle.

Except for the activity and order seen at the Roman Gravel, a drive through the Shropshire lead mining district, such as I had last week, is not inspiring.

A little smelting is carried on at Snailbeach, and work in a little way is going on at Perkins Beach, and just a little exploration at South Roman Gravel, and that is all. As you drive along the Bishop Castle-road you pass Batholes, West Tankerville, Ladywell, and the Grit Mines all in ruins, and the Roman Boundary all but idle, whilst you know that on a parallel line a mile or so to the east there are the Tankerville, Bog and Pennerley all idle. Many of the men have left for South Wales and Lancashire, where they have found work at the collieries. "I do not know how they have lived during the last winter" was the remark made to me concerning the miners and their families; but a more decent set of men, or tidier women, or clean, good-looking children, or neat little cottages, than are the Shropshire miners, their wives, children, and homes, it would be difficult to find. Happily the coal trade of North Wales and Shropshire is good, I may say very good, for the time of year. In the Wrexham district the Galewen and Plas Power collieries have been fully employed during the past month. The Vron and Talwrn collieries, although suffering from the effects of liquidation, are doing well; while at the Westminster and Wrexham and Acton large collieries, trade has been very good, the men averaging five days a week. At the Westminster Colliery a new pumping engine is being erected and various improvements are being carried out.

The Brynbo Steelworks, the first in North Wales, have begun well, a new furnace has just been added which will hold 15 tons of metal at each casting. The foundries also of this neighbourhood are all in full work.

In Shropshire there is not so much enquiry for coal, except for the best qualities of house coal. For best qualities of iron for steel and for manufactured iron and steel there is a fair enquiry. The Shropshire barytes trade is active, and the mines at Weston, Wotherton, and Middleton are busy. There are to be new extensions at the latter place, which will, I trust, be successful, but old miners like the promoters should cease expecting good lead mines in the midst of good barytes mines.

Mr. Puleston, M.P., has been more successful than Mr. Love Jones Parry, M.P., in drawing the attention of the Government to the necessity there is for appointing inspectors of open slate quarries. They are now left to the inspectors of factories who are not expecting to know anything about the working of such quarries. The Home Secretary (late) has promised to see what can be done, and as Mr. Puleston will probably have more influence with the new, and is himself a slate quarry proprietor in North Wales, we hope something practical will be done. The same provisions should apply to stone quarries, for only during the last month or two fatal accidents have occurred at the Llanwddyn stone quarry of the Liverpool Corporation. One at a stone quarry near Bangor, and one at a limestone quarry near Oswestry. The slate trade is fairly good, and the principal quarries are well employed. About 200 men from the Penrhyn slate quarries have joined the Quarrymen's Union during the past

week. The Cambrian Railway Company show an increase of over 100% a month in its receipts this half-year.

A trip was made by the directors and their friends on Saturday to Aberystwith in the new and improved carriages which have recently been added to the rolling stock. The Whitland and Cardigan Railway is just finished to Cardigan, and the old portion of the line has been relaid with heavier rails, and its curves have straightened, and its gradients lessened. Still the directors have been unsuccessful in their endeavour to place 474 shares. The country it passes through and opens up ought to take these.

#### LANCASHIRE.

June 25.—In both the Coal and the Iron Trades of this district business continues in a very depressed condition. With the close of the half-year there is the usual tendency to taper off in the weight of buying, and this has given a quieter tone to the market during the past week than, perhaps, fairly represents the actual condition of trade. In both pig and finished business has been very slow at extremely low prices. Lancashire makers of pig-iron have during the last few days been able to book moderately good orders, but to secure these they have had to take under their quoted rates of 39s. to 39s. 6d., less 2½, delivered equal to Manchester. In district brands, quotations for which vary according to quality, from 38s. and 38s. 6d. to 40s. and 40s. 6d., less 2½, delivered here, very little business is reported, and both North-country and Scotch irons are offered in this market at extremely low figures without attracting buying of any moment. Hematites are still in very poor demand and exceedingly low in price. In the finished iron trade orders either for shipment or home consumption come forward very slowly, and where business is done it continues on an extremely low basis of prices, averaging 5l. 5s. to 5l. 7s. 6d. for bars, 5l. 15s. to 5l. 17s. 6d. for hoops, and 6l. 17s. 6d. to 7l. per ton for sheets delivered into the Manchester district.

The condition of the engineering trades remains without material change, the tendency being still in the direction of contracting rather than expanding business.

In all classes of fuel the demand is exceedingly quiet, with pits not working more than an average of four days, and prices are easier, sellers being prepared with concessions to effect sales for present delivery. For house fire coals the demand is of an extremely limited character, and where buyers are prepared to take deliveries of any weight over the next two months they can readily place orders at under the quoted rates. Common round coals continue without any improvement in the demand, and are still a drug in the market. Engine classes of fuel meet with only a moderate enquiry, and slack, notwithstanding the lessened quantity of round coal now being screened continues plentiful in the market. At the pit mouth prices average about 8s. to 8s. 6d. for best coals, 6s. 9d. to 7s. 3d. for seconds, 5s. to 5s. 6d. common round coal, 4s. 3d. to 4s. 9d. burgy, 3s. 6d. to 3s. 9d. good slack, and 2s. 6d. to 3s. common sorts.

In the Shipping Trade complaints are very common at Liverpool as to the scarcity of orders, and generally only a moderate business is being done; prices remain at about 7s. to 7s. 3d. for good qualities of steam coal delivered at the High Level, Liverpool, or at the Garston Docks.

#### DERBYSHIRE AND YORKSHIRE.

June 25.—At some of the collieries in Derbyshire where the men held out against the reduction of wages, work has been resumed. The competition for the comparatively limited trade in house coal has increased, so that short time appears likely to be the rule in many districts throughout the country. Prices continue to have a downward tendency, although they have already reached the unremunerative point. With good coal at from 6s. to 7s. per ton, and some of the small at from 1s. 8d. to 2s., it is evident that profit must be entirely out of the question, so that unless a change takes place the present rate of wages is not likely to be maintained much longer. In the London market soft coal is again becoming something like a drug, whilst the selling price is now lower than for a very long time past. Large coal from some of the Derbyshire pits is now delivered at 18s. and 19s. a ton into the cellars of the London consumers, and Silkstones as low as 20s., and these are prices which when the cost of conveyance and the other charges from the pits are deducted leaves but little for the coal itself. Steam coal has gone off tolerably well, all things considered, the railway companies in particular taking a full average, whilst the requirements of the ironmakers are not so heavy as what they were this time last year. Like other kinds of coal the price of steam qualities has gone down, although as a rule this is about the busiest period of the year so far as shipments are concerned, and there are a few collieries that are in a position to send to some of our ports for exportation, and there is no doubt that the number will considerably increase during the present year by advantage being taken of the facilities held out by the Great Northern Railway Company and the authorities at Boston. The quantity of coal taken for manufacturing purposes has not been large, but next year will see a marked improvement in the demand for this description of fuel by the formation and completion of the Dore and Chinley Railway.

There is nothing new to report with respect to the Iron Trade of Derbyshire and Notts, which is by no means brisk, whilst the make of pig is less than what it was. Still a considerable tonnage of ironstone continues to be imported from Wellingborough and other parts of Northamptonshire, where the ore is leased and worked by the makers in the two former counties. The quantity of both forge and foundry pig going into Lancashire and Staffordshire is by no means large, whilst a moderate tonnage is still the rule as regards the West Riding. The mills have not been fully worked for some time past, but some of the largest foundries are now working fairly, most being done in gas and water pipes, and in ordinary heavy castings. The lighter branches of foundry work are still rather quiet, whilst the engine and machine works are in a somewhat similar state. In malleable iron material there has been a tolerably fair output, but the original seat of this industry, Dronfield, is now feeling the effects of the removal of the steelworks to Cumberland, and there being about 400 houses unlet, and likely to remain so, owners and some of the occupiers are consequently in anything but an enviable position.

Some of the Sheffield branches of trade are doing a fair amount of business, whilst others are anything but well off. Government orders are now keeping a good many workmen fully employed, and this is likely to be the case for a considerable time to come, for the new Government is more likely to add to our armaments and munitions of war than otherwise. The new war vessels that are now in course of construction in the Government as well as in private yards has led to a generally improved demand for composite plates, so that both Sir J. Brown's and Cammell's have a long season of activity before them in connection with English vessels of war. Steel plates are also likely to be in much greater request than they have yet been, seeing that most of the new vessels will be principally constructed of that material. In the mercantile marine, also, steel plates are fast superseding those made of iron, and boiler-makers are following in the same direction. In Bessemer steel no material change has taken place recently, there being a tolerably fair output of rails and ordinary railway material, as well as billets for various purposes

Steel crucible wheels are in rather better request than what they were, but there is plenty of room for improvement in this important branch of trade, and in which the Sheffield makers now hold the first place. A little more has also been done in some kinds of mining and heavy machine tools worked by power. The cutlery branches are still quiet, both on home and foreign account, but a fair amount of business is being done in machine knives and light agricultural implements, as well as in lawn mowers, turnip, and similar cutters worked by hand.

In the South Yorkshire district work has become general at the collieries, with the exception, perhaps, of Denaby Main, where the evicted men are evidently endeavouring to make capital out of their position. During the week a considerable number of hands have been imported from North Staffordshire, but the tactics of those on strike are again likely to be successful in preventing the colliery being worked to anything like the extent it ought to be, and it is quite likely that the company will set the colliery down, seeing that the old hands will neither resume work themselves nor allow others to do so.

#### SOUTH WALES.

June 25.—The Coal Trade at the principal South Wales ports last week was not so active as in the previous one, when Cardiff sent away the highest amount in the history of the port. The total for the same port last week was 144,985 tons foreign, and about 20,000 coastwise, with the 3426 tons patent fuel; Newport, 28,725 tons foreign, and 19,857 coastwise; Swansea, 13,101 tons foreign, and about 11,000 coastwise, with 5427 tons patent fuel. The business on small steam coal and patent fuel is good, but house coal is in slack demand.

The Steel and Iron Trades are, on the whole, better employed, though at a margin of profit which is not satisfactory. Newport sent away last week 1164 tons to Montreal; Valparaiso, 1050; La Guayra, 610; Catania, 63. Of iron ore Cardiff received 6896 tons from Bilbao, and 295 from other places; Newport, 8438 tons from Bilbao, and 950 from other places.

In the Tin-plate Trade there is no improvement. Coke-plates are being sold as low as 13s. 9d. to 14s. 6d., and some even lower than that. The demand for export continues good, 128,000 tons being sent away during the first four months of the present year, being 2000 more than in the corresponding period of the preceding year, and an advance of 21,000 tons upon the year 1883. There is little hope for improvement in prices until manufacturers come to a better understanding as regards the output.

#### TYNE AND WEAR.

June 25.—There is not much change in the position of the Coal and Coke Trades here. On the whole they are certainly a little more quiet, although the best steam coals still go fairly off, and steam small and bunker coals are also in fair demand, but the future prospect for coals generally is hardly so high as it was a short time ago. The demand for house and gas coal is, of course, moderate at this season, and an improved demand for coke is also anxiously looked for, but this can only occur when a substantial improvement in the iron trade occurs.

There is a strong demand and considerable activity in the fire-brick and fire-clay goods trade at present. There is a good consumption inland of drain-pipes, &c., and also good shipping orders. The demand for some kinds of chemicals also, more especially bleaching-powder, is very strong at present, and thus goods are sold at advanced rates. The shipping trade generally is again in a very depressed state, freights both outwards and inwards are low, and it has again been found necessary to lay up some steamers who have arrived lately in these rivers, as their late voyages have not proved to be profitable.

Borings for salt on the Tees by the Tyne Chemical Company and others are continued on a large scale, and it is expected that there will be a large increase in the production of salt from this new field shortly, which will prove of great benefit to the chemical trades in these rivers.

THE TEAM COLLIERIES, NEAR GATESHEAD.—Since these extensive and important collieries were acquired by the Bertley Iron and Coal Company great extensions and improvements have been carried out, and some important measures are now in progress. This is one of the oldest coal works in the North of England, and it has been worked continuously in some parts of the large field from the earliest times. Coal working near the surface on the west side of the Teams river was we believe carried on by the Liddells, the founders of the Ravensworth property, and Title upwards of 200 years ago. Afterwards the famous Durham firm, known as the "Grand Allies," worked this property. The late Mr. Burdon succeeded that company, and he held the royalty and worked the various coal for a great number of years.

The estate is large, and all the numerous good seams of the district are found over the whole of it, and lying at a moderate depth, most of these seams have been worked, some of them extensively; but none of them have been exhausted. Since the Bertley Iron and Coal Company acquired the royalty the surface works at the Betty Pit have been completely remodelled, and new screens, &c., have been erected. This is the principal coal drawing shaft at present, and a large quantity of steam and manufacturing coal is raised here daily. A very superior bunker coal has been raised from one of the seams here for a long period. On the west side of the royalty the new company have opened out a large tract of Hutton seam, which is now worked for gas coal for the London markets, and this coal is raised at a shaft near the Team river. There are a large number of shafts on this royalty, and this has no doubt prevented to a great extent any trouble from gas in the workings. The mode of ventilation has hitherto been by furnace, of which there are several placed at the bottom of the shafts, but all this will be changed shortly. A shaft called the Meadows Pit, situated near the centre of the royalty, has been enlarged, in order to put it for the purpose of forming an upcast for the great bulk of the workings, and a powerful ventilating fan is now in course of erection at the top of the shaft. This fan is on a new principle, and is known as Coxon's Patent Ventilating Fan (Wigan). We have had a number of ventilating fans in this district for a long period, but the bulk of them are Guibal fans. The largest fans of that class are, indeed, to be found here at the Usworth and St. Hilda's Collieries. The Coxon fan is, however, on a different principle from the Guibal; the vanes are differently constructed, and it is claimed for the former that it is much superior to the latter in every respect, both as to the quantity of air put into circulation in proportion to the dimensions of the fan, and also superior in economy of working. When the fan is completed and put to work several furnaces will be extinguished, the general ventilation will be much simplified, and improved and great economy will also be effected, as the consumption of coal will be largely reduced, and the cost of labour also considerably reduced—that is, in the ventilating department. We expect to be able to give full particulars as to the performance of this fan at a future date.

The Iron Trade is still in a lifeless and dull condition, and at present there appears to be no chance of securing any better prices. The state of the shipbuilding trade continues to have a bad effect on the iron trade generally. The foreign demand for pig-iron also continues very limited; but, allowing for all these adverse circumstances, we have the encouraging fact that the

shipments of pig-iron from the Tees have been large of late, and they are increasing; the increased shipments are, of course, to Scotland. Scotland has long been the best customer for Cleveland iron, and we have also the fact that the iron in the warrant stores is being increased, which shows that the extreme low rates at the present time are stimulating some buyers for consumption, and also inducing capitalists to invest their money in iron in order to wait for the rise which must come with increased demand at no distant date it is hoped. For the present month the shipments of pig-iron have averaged 3500 tons daily, which is from 500 tons to 1000 tons per day above the quantity for the previous months of the year. At that rate the shipments for the month as a whole must be expected to be over 80,000 tons, a very satisfactory month's work. Manufactured iron and steel has been exported at a rate which is above an average, so that it is apparent that the amount of work done of late is large. The rail trade has been extremely flat of late. The iron rail trade is, indeed, almost extinct, but the steel rail trade has also been very flat; but we learn that Messrs. Bolckow, Vaughan, and Co., have obtained an order for no less than 25,000 tons of steel rails. These rails are, we believe, for the use of railway companies in India.

#### MINING INSPECTORS, AND INSPECTIONS OF MINES.

It is a singular fact that whilst the great body of miners through their agents and Parliamentary officials, are crying out for the appointment of additional Inspectors, there are some who consider that inspection as it now exists is of no good whatever. This was specially referred to last week at the annual demonstration of the Cleveland miners, when Mr. BURT, M.P., in alluding to an article which appeared in a well known monthly under the head of "Mining Inspection a Sham," said that during the last 30 years inspection of mines had been attended with excellent results. This we believe will also be the unqualified opinion of all who have any acquaintance with the subject. Acting upon the advice of Prof. PHILLIPS and Mr. BLACKWELL, who had been appointed by the then Government to examine the coal mines in the different parts of the kingdom, and to report with respect to them, Lord CARLISLE, in July, 1850, introduced a Bill into the House of Lords, since known as the first Mines Inspection Act, it having passed through both Houses. It was only an experimental measure, limited to five years, but the importance of it being fully recognised it was continued. From the very first year of its coming into force its value became evident from the decrease which took place in the number of mining fatalities, and this cannot be disputed, seeing that there are reliable Government returns to bear it out. But whilst there has been a decrease in the number of persons killed by mining operations compared with the number employed, it must not be overlooked that since the passing of the Act of 1850 mines have been sunk to far greater depths than was ever anticipated 30 or 35 years ago, and it will be admitted on all hands that the greater the distance from the surface so increases the difficulties as regards the explosive gases and ventilation, whilst the danger to the workmen becomes intensely magnified as well. Yet with these greatly increased dangers and difficulties, which have been growing of late years at a very rapid rate, it is assuring to find that the death rate of the workmen has gone on decreasing, a proof in itself of the value of the inspection of mines by Government officials. In 1851, when the Act relating to Inspectors may be said to have come into operation, there were 984 deaths caused by accidents in collieries under the Coal Mines Acts, making 1 death for every 219 persons employed in and about the mines, but in the following year the death rate was 1 in 226. Taking the 10 years from 1851 inclusive the deaths were 10,018, giving an average of 1 killed for every 245 persons employed. The end of the next 10 years shows still more satisfactory results, as the deaths averaged only 1 for 300 employed. Taking the next cycle of 10 years there was a still further diminution in the death rate, which was only 1 for every 425 persons employed, and for the three years ending in 1883 only 1 person was killed out of 483 who were working. It will be seen that in the course of about 33 years the deaths from accidents in coal mines was reduced more than one-half, despite the increased danger that had taken place by the greater depths to which mines had been sunk and the increased difficulties that consequently had to be encountered and overcome in connection with explosive gases and ventilation. Surely these facts speak strongly in support of the view that mines inspection, so far as it has gone, has been a most decided success, more especially when it is taken into consideration that with the exception of the ventilating fan no new scientific appliances of any importance have been brought forward in connection with the safe working of mines. But the Inspectors of Mines have done valuable service in doing all they could to prevent the use of gunpowder in mines of a fiery character, and in having adopted the best safety-lamps. They have listened to the complaints of the workmen, visited and inspected mines, and pointed out what was essential to the safety of the workmen, and seen that what they required was carried out. It may be that still further safety will be obtained by the appointment of additional sub-inspectors, and to such appointments there are few even amongst our mineowners who will demur. But the men so appointed should be something more than ordinary miners, sympathising alone with the men, and in strong antagonism to the employers. They should be acquainted with the laws regulating the movements of gases and all aeriform fluids, and in general mining education equal to the average certificated manager whom they would have to advise after they had inspected a mine and discovered what they considered required altering or doing away with. To resort to an inferior class of men would simply be to bring mines inspection to a point that would render it in many cases something worse than useless. It might be stated that under the Mines Regulation Act of 1872, men employed in a mine may, from time to time, appoint two of their number to inspect the mine at their own cost; but this does not appear to be of much significance, and for various reasons. The men who have to inspect on behalf of the workmen have to do so accompanied by the owner or manager, or one or more officers of the mine, and then to write a report of the result of the inspection in a book kept for the purpose. This places such men in a most invidious position, for it is not every workman who will register anything that will be detrimental to the position of the manager or other official, on whose good-will the nature of their work in all probability depends, for there are good and bad places in all coal mines. In the appointment of Inspectors, for the purpose of assuring to the workmen in mines the greatest possible amount of safety, it is necessary that the persons selected for such an important office should have a fair amount of general education, as well as be practically acquainted with mining and mechanical engineering, and entirely outside the influence of mineowners, managers, or working miners. Mining inspection, as we have pointed out, has done a great deal of good by greatly lessening the death rate from mining accidents, and in the new appointments that we are told are about to be made it is to be hoped that the existing standard with respect to ability and education will not be materially lowered, if, indeed, it is lowered at all.

#### THE EXHAUSTION OF OUR COAL FIELDS.

The probable exhaustion of our coal fields, and the consequent destruction of all our great industries, and our extinction as an important commercial nation, for many years past has been dilated upon by all kinds of persons, scientific and practical, as well as by those who have no claim whatever to either of those qualities. Another addition to the number has just been added by a gentleman who has published his views in a pamphlet, entitled "A Warning Voice from the British Coal Field," and published by a Liverpool firm. The writer evidently considers that the time has arrived when the output should be limited, and suggests, indeed, that it should be reduced by one-sixth, when the price would go up 2s. per ton. This looks very well, so far as it goes, but the writer does not tell us how it would affect the manufacturers and the working classes throughout the country. In the first place, there would be about 100,000 miners that would have to be provided for in some way or other, whilst the advance in the price of coal would also greatly decrease all kinds of manufactures for which coal is required, immensely reduce our exports, throw thousands of mechanics, factory hands, labourers, and, indeed, all kinds of workers out of employment, and, at the same time, inflict a serious injury upon our mercantile marine. It would, in fact be giving a very large proportion of our trade to foreign competitors, so ruining employers and workmen, for these could not live by the home consumption of what they produce, and it is well known that our manufactures maintain their position in the markets of the world solely by being able to sell at a lower price than their foreign competitors, and this they can only do by being able to purchase fuel and other kinds of raw material at a comparatively moderate rate. But without limiting the output of coal there are other means by which the exhaustion of our coal fields may be retarded, and that is by lessening the waste in its production, and adopting the most economical methods in consuming it. In both of these respects a good deal has already been effected, and no doubt a great deal more remains to be done, for the limits of economy in the consumption of fuel for all purposes there is every reason to believe is still a considerable way off. In the smelting of metallic ores, and in the producing of steam, the expenditure of fuel has already been brought down to a low point as compared with former years. At the Clyde Ironworks, in 1796, we are told by Mr. Mushet it took 9 tons 10 cwt. and 20 lbs. of coal to produce 1 ton of pig-iron, but ironmasters have worked hard and successfully to reduce the quantity required, more especially during the last 15 or 20 years, and have done much by the introduction of the Whitwell and Cowper hot-blast stoves. In 1874 the coal consumed per ton of pig-iron made was 2.55 tons, in 1878 it was 2.21 tons, in 1881 it was 2.15 tons, and now it is only about 2.5 tons. Of course some iron ores require much less fuel than others, for whilst a ton of the Lancashire and Cumberland pig will be made with about 38 cwt., the Cleveland and some others will take from 42 cwt. to 48 cwt., but the averages we have given show how very effectually the producers of iron have worked hard to reduce the expenditure of fuel in smelting the ironstone. In the raising of steam, and the making of gas and coke, marked economies have also taken place of late years. Great improvements have been made in the construction of boilers, all having for their object the minimising of the consumption of fuel, in some instances the introduction of water tubes or generators has been found most effectual, giving a greater amount of heating surface and better circulation than is obtained from the old type. Steel boilers are also found to require less fuel for raising a given quantity of steam than those made of iron, whilst the superheating of the steam has proved economical. In all kinds of engines inventors have been successful in obtaining increased power with a less amount of steel, and of course of the raw material which produces it. A larger quantity of gas and of a high illuminating power is now obtained from coal than was formerly the case, whilst there has been a marked decrease in the quantity required for making coke. Indeed, for almost every purpose for which considerable quantities of coal are required, economic appliances have been successfully introduced, and this will continue to be the case, for mechanical skill and science will continue to progress in the direction of affecting still greater economy in the consumption of coal for all purposes.

Coming to the question of the exhaustion of our coal fields, we are told that Mr. Ellis Lever and Mr. Sydney Lupton consider that they will be depleted in about 110 years. We are not aware that either of these gentlemen can be taken as authorities on the subject, and their estimate is very far below that of Mr. Hull and Mr. Price Williams, whose views were quoted by the Commissioners on Coal, and who calculated that, admitting that there would be an annual increase, the quantity left would last about 350 years from the present time. But even this latter view is looked upon as being lower than it ought to be, seeing that the diminishing ratio at which coal must be consumed when it becomes scarce and costly had not been taken into consideration. We certainly know the drain that has been made upon our coal fields in the past, but no one can predict what it will be in the future, and on this point the Royal Commission which was appointed in 1870 refrained from giving an opinion, for, as Mr. Hull says, it was a question to which no definite answer could be given. It may also be said that it does not follow that the consumption will not increase year after year, but in all probability the reverse will be the case. This is indicated by the fact that, despite the increased quantity of coal exported last year, the output was 3,693,152 tons less than what it was in 1884. Again, the probability is that new fields of coal will be discovered, whilst, as the late Mr. Woodhouse stated, there was no telling the quantity of coal that would be found below that mighty formation, the magnesian limestone. But of the fields of coal of which we have knowledge, and reported upon to the Royal Commission we have alluded to, we find that in South Wales and Monmouthshire there is sufficient coal to last 1300 years at last year's rate of production.

Taking the Midland field, which comprises Nottinghamshire, Derbyshire, and the West Riding of Yorkshire, there is sufficient coal at the rate of last year's output to last 1250 years. But if we take the coal in the exposed and concealed fields in the kingdom at 137,000,000,000 tons, and assuming that there would be increase over the production of 1884 in the future there would be sufficient to last for 885 years. Under these circumstances there does not appear to be any necessity for causing an alarm, with respect to the exhaustion of our stores of fuel, whilst to attempt to limit and reduce the output would only result in signal failure. Cheap coal is necessary for the support of our manufacturing and commercial existence, and no arguments will induce holders of it to withhold all that is required by consumers, and the price of it will be ruled in the same way as that of any other commodity.

Messrs. FRY, JAMES, and Co. write under date June 26.—Copper:—The market has been more steady since our last, but is has been at the same time inactive, and Chilean is slightly lower. Iron continues dull, and Scotch pig is slightly lower. Tin has again experienced some sharp fluctuations, but is, on the whole, from 2s. to 3s. per ton dearer than it was a fortnight ago. The operators for a rise in prices have made great success in concentrating the bulk of the stock into their own hands, and thus gaining command of the market. Lead continues to be less offered, and is again rather dearer to buy. Spelter is without feature. Tin-plates steady.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. Wm. ARNOTT, of Tokenhouse-yard, are given in tabular form in the Stock and Share List page of the Journal.

#### Meetings of Public Companies.

##### THE VENEZUELA-PANAMA GOLD MINE COMPANY (LIMITED).

The second ordinary general meeting of shareholders was held at the Cannon-street Hotel, on Saturday, June 20, Mr. GEORGE BAIRD, the Chairman of the company, presiding. Mr. F. R. GRIGG (the secretary) read the notice calling the meeting, also the minutes of the last meeting, which were confirmed. The report and accounts were taken as read. The CHAIRMAN said—Gentlemen, I take this opportunity of telling you that the directors consider the work of the past year is, on the whole, satisfactory, although the accounts show a loss of 12,000l. But we cannot take last year's work as that of a mine in full working order, because we only began to work the mine as it ought to be worked from the beginning of this year. Last year was devoted entirely to the opening up and developing of the mine, and furnishing all the necessary plant and other things which we required. We, as you know, started upon the calculation of 40,000l., covering everything, but upon opening up the mine we found that amount was not sufficient. We had to go deeper than we expected to find payable quartz; but we did not like to bother the shareholders by asking for extra capital, so the directors amongst themselves have found what was necessary to complete the work of fully developing the mine, which was a considerable sum, and amounted to nearly 40,000l. more than we calculated. It is satisfactory to be able to say that all our expectations are being realised. The main shaft is now down 450 feet and 12 feet below the sixth level. The quartz has been gradually improving in richness, and we are now in very payable quartz—that from the bottom yielding 2½ ozs. per ton. During the first three months of this year we worked very well, and for January we had remittances of 8400l., for February 11,800l., and for March 13,300l. But half of the January remittance belonged to last year, so that in reality we must take only two and a-half months, during which we worked 5436 tons of quartz, and produced 7455 ozs. of gold, which realised 29,420l., equal to 5l. 8s. 3d. per ton, and shows an increase of 15s. 6d. per ton upon the average obtained for last year. (Hear, hear.) I am sorry to say that after that two and a-half months' work we have had absolutely no water to work with. There has been such a drought in the country as has never prevailed there before, and we have been three months absolutely standing still. The last telegram from the mine gives us hope that we may now have water. It was sent off on the 11th and received here on the 16th, and in it our superintendent informs us that there have been increasing rains. I had hoped that the last telegram would have been more encouraging; I hoped they would have begun work. But we cannot blame our superintendent for having no rain. This of course is only a temporary loss, and directly we begin work again I am perfectly certain the superintendent and other officers will use their best endeavours to make up for lost time. The time has not been actually thrown away, for during the three months the superintendent employed all the contract men he could in putting the place in thoroughly good working order, and there is no mine in Venezuela so fit to work as ours. I do not know, gentlemen, that I have anything more to say. I hope next year we shall be able to give you a better balance-sheet. I have only, in conclusion, to move the adoption of the report and balance-sheet for the year 1884. I repeat that our mine shows better than it has ever done before, and I hope when we once get the rains we shall increase our yield up to 4000 ozs. of gold per month, which I hope will continue. (Cheers.) I propose the adoption of the report and balance-sheet, and shall be happy to answer any question.

Several shareholders at this moment having entered the room, the CHAIRMAN continued—Gentlemen, we waited a quarter-of-an-hour before beginning, but I will tell you what we have done. We have confirmed the minutes of the last meeting, and have just now proposed the adoption of the report and balance-sheet for the year 1884. If any shareholder wishes to ask any questions I shall be very happy to answer them. Mr. Imbert, as legal representative of the estate of the late Mr. Palazzi, I should like to know whether you have any questions to ask?

Mr. IMBERT having replied in the negative, Colonel the Hon. G. P. H. VILLIERS seconded the resolution, which was put and carried unanimously.

The CHAIRMAN: Gentlemen, the next business is the re-election of directors. If there is no objection, I propose, as it will be more convenient, to take the confirmation of Col. Villiers' election and the election of the other two gentlemen in one vote. I, therefore, propose the election of Col. the Hon. G. P. H. Villiers to a seat at the board be confirmed; and that Lieut.-Col. Edward Raikes and Mr. Paul Bechet, the two directors who retire by rotation, be re-elected.—Mr. LEOPOLD SALOMONS: I second that.

The motion was carried. Mr. LEOPOLD SALOMONS proposed the re-election of the auditors—Messrs. Broads, Paterson, and Co., and that the remuneration be increased from 60 guineas to 100 guineas.

Mr. DALRYMPLE seconded the motion, which was carried.

The CHAIRMAN said that concluded the business of the meeting. Mr. DALRYMPLE: Before we part I beg to propose a cordial vote of thanks to the Chairman and directors for the great attention they have paid to the business of the company.

Mr. LEOPOLD SALOMONS seconded the motion, which was carried.

The CHAIRMAN: Gentlemen, I beg to tender you our hearty thanks for the kind way in which this vote has been proposed and carried. You may be perfectly certain we will do our best to promote the success of the concern. I may say that the directors on this side of the table hold nearly half the shares of the company, and therefore it is to our own interest to do all we can to make the company a success. (Hear, hear.) I hope by this time next year we shall show very good results. I have every confidence in the property, in fact even more than I had a year ago. (Cheers.)

The proceedings then terminated.

##### WHEAL GRENVILLE MINING COMPANY.

A general meeting of shareholders was held at the offices of the company, Union-court, Old Broad-street, on Tuesday,

Mr. R. W. GOULD in the chair.

Mr. D. JULYAN (the secretary) read the notice convening the meeting, and the minutes of the preceding meeting were read and confirmed. The statement of accounts for 12 weeks, ending June 5th, showed that the tin sold—127 tons 12 cwt. 0 qrs. 26 lbs.—realised 6101l. 18s. 11d., and the labour costs and merchants' bills together amounted to 4223l. 13s. 2d. The balance in favour of the mine was 2127l. 8s. 7d.

The following report from the agents, dated June 8th, was taken as read:—

We beg to hand you the following as our report of this mine:—The 205 is driven east of Gould's shaft 45 fms. 2 ft., the lode in which is worth 6l. per fathom. The 190 east is driven 78 fms. 1 ft. 5 in.; present end poor and suspended. The winze below said level is down 4 fms. 4 ft., worth 10l. per fathom. The best part of the lode has dipped east out of the winze. The 178 east is driven 147 fms. 5 ft. 2 in., the lode in which is worth 5l. per fathom. The 165 east is driven 175 fms. 4 ft. 11 in.; present end worth 6l. per fathom. These men are putting up a rise in back of this level, and when communicated the end will be started with a full force of men; the rise produces stamping work. The winze below the 153 east is down 11 fms. 2 ft. 6 in., the lode producing low price tinstone. The 180 east is driven 282 fms. 1 ft. 3 in.; the lode in the present end is disordered by a patch of granite. Since our last general meeting we have opened up a rich section of ground here about 8 fms. in length, worth from 50l. to 60l. per fathom. We have communicated the 165 west level with the western shaft, which has well ventilated this part of the mine. We are now engaged clearing this level west of the western shaft, and in a day or two we shall start the end. The 150 west end produces low price tinstone. The 140 west is driven

37 fms. 2 ft. 4 in., and is worth about 10l. per fm. The 130 west is driven 70 fms. 4 ft. 9 in., and is worth 8l. per fathom. The 120 west is driven 58 fms. 2 ft. 7 in., and is worth 6l. per fathom. The winze below the 90 west is down 14 fms. 5 ft. 6 in., the lode in which is worth 7l. per fathom.—Stopes: The 178 east stope is worth 18l. per fm. Three stopes in the back of the 165 east are worth together 55l. per fm. No. 1 stope in the back of the 150 is worth 20l. per fm. No. 2 stope in the back of the 150 is worth 60l. per fathom. We have 20 pitches at work on tribute, by 58 men, at an average tribute of 9s. 4d. in 1l. for tin, to be paid at the rate of 44l. 6s. 8d. per ton. Since your last general meeting we have sold 127 tons 12 cwt. 0 qrs. 26 lbs. of tin, and we hope during the next 12 weeks to sell about 132 tons. The mine, on the whole, is looking very well indeed, and with present price for tin we can work at fair profit for some time to come. Men employed, 180; boys and girls, 90; total 270 persons.

The CHAIRMAN said they were met under happier auspices than had been usual with them, he thought, for no shareholder who had given any amount of attention to the report of the agent and the statement of the figures, which had been in their hands for a week or ten days, could have come to the meeting with any other feelings than those of considerable satisfaction. It was a fact that the mine had improved to a very considerable extent, and that the financial position of the company had improved with it; and he was, therefore, very much pleased, as the mouthpiece of the committee, to be able to draw the attention of the shareholders to two or three features in the statements presented, which were of great interest, and also of considerable moment. Whilst doing this, he would ask them to be good enough to bear in mind that the figures presented contained the results for the 12 weeks only, whereas the former quarter comprised 16 weeks. He asked them to bear that fact in mind, because he would have to refer to the figures of the quarter before to make comparisons, so as to enable the shareholders to form a sounder idea of the progress which had been made than could otherwise be formed. It would be remembered that at the meeting in March the committee informed the shareholders that between the date of the agent's report then presented and the day of the meeting, an improvement had taken place in the 150 level east which appeared to be of such moment and such importance that they had directed Capt. Hodge to attend the meeting, in order that the shareholders might be placed in possession of the latest information with regard to it. Capt. Hodge accordingly attended the meeting, and it would be within their recollection that he had reported the lode, which had been worth 8l. or 10l. to the fathom a few days before, to have suddenly improved, and at the time of meeting he placed the value at from 30l. to 35l. to the fathom; but Capt. Hodge added in his usual cautious manner, that he would not be surprised on his return to Cornwall to find, on a careful assay of the stuff, that it was of much greater value than that. He (the Chairman) was very happy to say now that the improvement had not been a mere flash in the pan, nor a mere Will-o'-the-Wisp, here to-day and gone to-morrow, but that it had continued steadily until now that about 8 fathoms had been driven through, the end was worth from 50l. to 60l. to the fathom. The total width of the lode was not known as neither wall had been reached. Just to show how that improvement had affected the intrinsic value of the property he would mention that above that improvement they had 35 fathoms of backs to come away, and below it, down to the 165 fm. level, taking into account the underlie of the lode, they had about 20 fathoms more; that was about 55 fathoms. Multiplying that by the 8 fathoms they had driven through it would be seen that they had 440 fathoms of rich ground to bring away; so that he did not think it would be any exaggeration on his part to say that that improvement represented something like from 15,000l. to 20,000l. worth of tin brought into view and placed within their reach since the last meeting. (Hear, hear.) This was, therefore, a very important improvement. As Captain Hodge mentioned at the meeting, he had been expecting an improvement in that direction and in the level underneath for months before the last meeting, and his expectation was fully borne out by one of the highest mining authorities in Cornwall, whose report was obtained by independent people, and which he (the Chairman) had been privileged to see. This authority mentioned that he fully expected that they would have two or three runs of rich ground in that direction before they reached the boundary, where, as they knew from the working of West Frances, there was a large deposit of tin for them to take away some day. This was all the more satisfactory because in a conversation which he had with Captain Hodge two or three weeks ago their agent mentioned that he was again expecting to find another rich run of ground before many more fathoms were driven in the 150 in the same direction. This 150 would be driven with all possible speed eastward, as would also the next level below, the 165, and as soon after that as possible the 178, only 28 fms. behind the 165, would be pushed on with the view of getting into the same run of ground. They had in the mine now six stopes at work, as against seven last quarter; but as an evidence that the mine had somewhat improved in other directions than in this particular spot, he would ask them to note in the agent's report that the aggregate value of the six stopes was now 153l. per fathom, or an average of 25l. 10s. per fathom, as compared with an aggregate of 84l. for the seven stopes on the last occasion, or an average of 12l. per fathom; so that taking the stopes as a whole throughout the mine, the lode must have very considerably improved. They had 20 pitches at work as against 18, and these had certainly not gone backwards, as they were let at 9s. 4d. in 1l., whereas they were paying 9s. 6d. in 1l. at the last meeting. In the western part of the mine an indication had been effected between the two shafts at the 165 fathom level, and in this part of the mine four ends were now being driven westward, the 120, the 130, the 140, and the 150. Some of the shareholders would probably remember that some nine years ago the whole of the tin raised came from this neighbourhood, and at that time they were getting from 16 to 17 tons of tin a month; and they were now hoping to increase the returns from this part of the mine again. They would then have 10 ends going, five in the eastern, or new part of the mine, and five in the western part. He was afraid their men had not been earning very large wages; but he hoped with an increased price for tin and the improved condition of the mine that they would share in the prosperity of the company. (Hear, hear.) Turning to the figures, it would be seen that they had sold during the past 12 weeks 127 tons 12 cwt. of tin, which was a monthly sale considerably in excess of the monthly sales of the previous 16 weeks, when the total amount sold was 141 tons, or a monthly average of 35 tons 9 cwt., as against a monthly sale of 42½ tons in the past quarter, or an increase in the amount of tin sold of over 7 tons a month. This was a very considerable increase and it was all the more satisfactory when they considered that it had not been achieved by any sudden or spasmodic effort on the part of the agents and dressers at the end of the quarter, or by any cleaning up of the floors so as to make up the sales; but the increase had been gradual. The average monthly sale in the preceding quarter was 35 tons 9 cwt.; in the first month of the past quarter it had been 38 tons, in the second 43 tons, and in the third 45 tons. (Cheers.) That rate of increase was, to his mind, exceedingly satisfactory, and the figures revealed to them that not only had the mine made real and healthy progress during the last quarter, but that extreme caution had been used by Capt. Hodge in expressing, as he did in his report, the hope that in the current quarter he would be able to return 132 tons of tin. He (the Chairman) hoped so too; but he confessed that he would be exceedingly disappointed if the returns were not more than 132 tons. He believed he was warranted in hoping that the returns would be nearer 140 tons for the quarter than 132 tons. For the 127 tons of tin sold they had received 6126l. 15s. 11d., being an average of 48l. 0s. 4d. per ton, as against the average during the previous quarter of 44l. 8s. 3½d., so that during the past quarter they had received 3l. 12s. per ton more for the tin sold than the average of the preceding quarter. There had been a very much larger rise than that from the beginning to the end of the quarter, but they had not reaped the full benefit of that improvement in the quarter. If they had received during the quarter the price obtained at the last sale in the accounts, they would have made an additional profit of 660l.; but the first sale in the quarter realised only 46l. 7s. 6d., and that was for about 60 tons out of the 127 tons sold, while the other monthly

sales of about 41 tons realised respectively 47l. 12s. 6d. to 48l. 17s. 6d., while the sale on the 4th June realised 53l. 6s. per ton for 20 odd tons. On the other side of the account it would be found that there had been a considerable decrease in the cost of getting the ore. The costs for labour and agency had been 2771l. 0s. 7d.; for merchants' bills, 1052l. 12s. 7d.; and for lords' dues and all the other expenses—charging everything to the latest possible date—283l. 4s. 8d., or an aggregate of 4506l. 17s. 10d., being at the rate of 35l. 6s. 4½d. per ton of tin sold, as against 39l. 6s. 8½d. in the previous quarter; so that the costs had decreased to the extent of 4l. per ton on all the tin sold. These figures contrasted favourably with those of any other mine in Cornwall selling only a similar quantity of tin. The rate of profit had increased in a wonderful degree—from 5l. 2s. 9d. per ton of tin sold to 12l. 13s. 11½d., or an excess of profit in the past quarter of 7l. 10s. 2½d. per ton. (Cheers.) He thought he had said enough to show that their position in every respect was one upon which they might congratulate themselves thoroughly, and he anticipated that at the next meeting the committee would be able to present as good, if not a better, statement of accounts. (Hear, hear.) The Chairman concluded by moving the adoption of the statement of accounts, together with the agents' report.

Mr. F. G. LANE, in seconding the motion, stated that since the accounts were made up there had been a sale of tin realising 1215l., which, added to the amount previously in the bankers' hands, gave them 3545l. without a single liability. (Hear, hear.) There would be a cost due in the first week in July, but there would be a sale about that time which would probably nearly meet the month's costs. The committee had visited the mine since the last meeting, and they could fully confirm the agent's report as to the state of the machinery, which was in every way satisfactory. The last sale of tin realised 54l. 10s., as against 53l. 5s. at the preceding sale. He believed that eastward their mine would be second to none in Cornwall. (Hear, hear.) They had received a promise of a renewal of the leases, which would fall in in September. Mr. Lane added that the company had in Col. Fortescue one of the most liberal, if not the most liberal, landlords in Cornwall, and he trusted that in the future their arrangements with their landlord would be as mutually satisfactory as they had been in the past.

The CHAIRMAN and Mr. WILLIAMS fully endorsed Mr. Lane's remarks with regard to Col. Fortescue.

The motion was then unanimously adopted.

The CHAIRMAN moved that a dividend of 5s. per share should be declared, payable forthwith. This would absorb 1500l., and leave 120l. to be added to the reserve.

Mr. W. BELLINGHAM seconded the motion which was adopted and those shareholders who were present were at once handed their dividend warrants.

The CHAIRMAN, in reply to Mr. WILLIAMS, stated that boring machinery had been tried, but the character of the ground was such that hand labour was quite as rapid and far cheaper than rock-boring machinery.

The CHAIRMAN moved a vote of thanks to the agents for the energy, perseverance, and economy they had exercised in the management of the mine.—Mr. DORE seconded the motion, which was agreed to.

On the motion of Mr. BUMPAS, seconded by Mr. WILLIAMS, a vote of thanks was passed to the Chairman and committee of management, and the meeting then closed.

#### WEST GODOLPHIN MINING COMPANY.

A general meeting of shareholders was held at the offices of the company, Union-court, Old Broad-street, on Tuesday.

Mr. F. G. LANE in the chair.

Mr. D. JULYAN (the secretary) read the notice convening the meeting, and the minutes of the preceding meeting were read and confirmed. The statement of accounts for the 12 weeks ended June 4 showed that the tin sold—19 tons 17 cwt. 1 qr. 3 lbs.—realised 991l. 18s. 8d. The labour cost amounted to 817l. 1s. 10d., and the merchants' bills to 360l. 0s. 8d. A balance in favour of the mine was shown amounting to 281l. 0s. 1d.

The following report from the agents was taken as read:—

June 9.—We beg to hand you the following report of this mine for your general meeting fixed for the 23rd inst. The 92 fm. level has been extended south-east since your last meeting about 2 fms., and intersected Pink lode; we have driven on its course east about 9 ft. The lode in the end is disordered and poor. In extending this end 6 ft. eastwards we expect to cut the eastern division or main part of the caunter, when we hope to drain and communicate the winze coming down from the 80. We shall then push on through the caunter and prove Pink lode eastwards. We have doubts of the good deposit of tin continuing downwards, striking away westwards from a point 5 fms. below the 80 in the winze, and in line with the rise of same in rising east to the 70. This we purpose to prove after communicating the winze by stoping the western end. If we prove correct we shall have about 10 fms. to drive west to catch the run of same. The 92 fm. level has been extended north-west 5 fms. and intersected Bellingham's lode, in which we have driven through 6 ft. and no north wall met with. We are pushing on to get through the lode fairly, following we shall commence to open on its course. About 4 ft. of the lode gone through, and showing in the western side is productive for copper and tin ores; and although we have opened but little on it, what we have seen is a great improvement to the level above in the junction. In this point of operation we wish again to remind you that we do not expect any appreciable improvement until we have driven a few fathoms both east and west of this junction, as we found in the upper levels, where the lode was rich approximately both sides for 80 fms. in length. This lode (Bellingham's) is the Trunk lode in this district, and we were never more sanguine of its developing into a rich lode in depth than we are at present. There is a feature in connection with cutting this lode in the bottom of your mine which we wish to draw your attention to, and what we very much like to see—the 80 fm. level did not satisfactorily drain the back of the level, no doubt for the reason that the lode is widened in this point and a portion still standing north, but immediately we tapped the south or footwall in the 92 we drained the back of the 80 (as well as the bottom); this indicates that in reaching the 92 the lode is again getting concentrated, and the draining the water was also a prominent fact in the cutting of the lode at the 50 and 60 fm. levels where the lode yielded so richly. We purpose shortly to drive north at the 80, to prove what is standing in that direction. In the bottom of the 80 fm. level we have commenced to sink a winze on Bellingham's lode, about 25 fms. west of the junction. The lode we value at 7l. per fathom, and promises to improve as we sink. The 70 east on Bellingham's is in a lode 6 ft. wide; the leader part, about 18 in., is composed of oxide of iron, carrying at times stones of tin. The other portion of the lode on both sides is composed of chlorite or peach, yielding occasional good stones of yellow copper. In this level we always held out good hopes, and while the level advances, with the present prospects, we cannot speak too highly of its merits; the enlargement of this lode, the chlorite or peach took place only a few fathoms behind the end in getting away from the great cross-course, and, comparatively speaking, we are in a run of ground here and in granite similar to the Pink lode at the 80 and 70, and where directly the leader part becomes fairly productive. The chlorite yields tin in paying quantities, and will average 1 cwt. of tin to the ton of stuff. We have only just entered this favourable channel of ground, and we think we have good reason to hope for having a good discovery as we advance. We have ample ground before this end for a large and extensive mine in a large lode; the richest portion of our once famous rich neighbour, Great Work, stands out east and parallel of this level. The winze below the 80 on the junction and in the eastern division of the caunter lode is producing saving work for tin, now down 9 fms. We have 2 fms. more to sink to reach the 92. After communicating this we shall at once commence to stop and follow the run of tin in a good payable lode. The 80 west, on Pink lode, is now west of the junction about 29 fms. The lode in the end is small but promising. The stopes in the back of the 80 west on Pink lode is worth 8l. per fathom. The stopes in the back of the 70 east on Pink lode is worth 7l. per fathom. The stopes in the bottom of the 50 west on Pink lode is worth 8l. per fathom. The stopes in the bottom of the

80 west on Pink lode is worth 8l. per fathom. Two stopes in the back of the 40 west are worth together 16l.—Machinery: Pitwork: We have placed a larger lift in the bottom to cope with the increased water, and improved and strengthened our connections above to match the same, and provide for sinking when it may be decided on. We have made a perfect classification of our tinstuff direct from the stamps by erecting a separator, and with this we can turn over double our present returns with only slightly increasing our dressing costs, when we may improve to that position. The falling off in value of the 80 stope east reduced our returns during the past month, but we hope to increase our returns again after communicating the 80 winze to the 92 on Pink lode. We predict that for our future meeting we shall have opened sufficiently on Bellingham's lode to show you some tangible proof that your property is a valuable one. All our machinery is working well. Men employed, 82; boys and girls, 22; total, 104 persons.

The CHAIRMAN said that he was sorry that he was not in a position to announce a dividend at that meeting, such as had just been declared at Wheal Grenville; but the accounts presented to the shareholders were, he considered, very favourable. They had during the past quarter sold 19 tons 17 cwt. of tin, realising 993l. The cost of obtaining that tin, including merchants' bills and every other charge, amounted to about 1180l., showing a loss of something like 80l. a month. He was sure that, looking at the agents' report, and seeing the quantity of work that was being done, the shareholders would say that the loss was a very small one. A large amount of development work had been done, and the prospects were very encouraging. At the last meeting a call of 1s. a share was made, which had enabled them to meet the loss incurred during the quarter, and they now had a cash balance in hand of 242l., besides assets valued at about 60l., the balance in favour of the mine being 281l. That was a position they had not been in for a very long time past. The accounts were charged up extremely close, and nothing to the good had been anticipated in any way. As regards the prospects of the mine during the current quarter, he might say that they had proceeded in a very satisfactory manner in opening out the mine, although the results had not yet been quite what they could have wished; but the prospects were such that he believed he would be able to congratulate the shareholders at the next meeting on having something more tangible than was now the case. In the 92 fm. level, south-east on the caunter, they had intersected the Pink lode. The lode so far had not come up to what had been expected from the dip of the tin ground going down in the 80, but the agents were not quite sure that they were really on the course of the lode. They were therefore sinking a winze from the 80 on the course of the lode, and this would enlighten them in a short time as to what they might anticipate further on upon the Pink lode. Their great success in the past quarter had been on Bellingham's lode. They had intersected and got through the lode, and the prospects were much better than they had been for a long time. They were now driving on Bellingham's lode in the 92 west, and in a winze in the 80 west the lode was going down worth 10l. per fathom. (Hear, hear.) Their prospects for opening a good piece of ground between the 92 end west and the winze going down from the 80 were such that he believed they would be able to make some satisfactory returns. Other parts of the mine were looking satisfactorily, with the exception of the stopes in the back of the 80, which had fallen off, and this had been the reason for decrease in the last sale of tin; but looking at the report as a whole the mine was evidently in a better position, so far as the development was concerned than it had been in for a considerable time past. The whole of the machinery was in a satisfactory state, and a great improvement had been effected in the dressing arrangements by the erection of a separator. He trusted that their anticipations with regard to the property would shortly be realised, and that at the next meeting they would have something more tangible to present than upon the present occasion. He moved the adoption of the statement of accounts, and the agents' report.—Mr. W. BELLINGHAM seconded the motion, which was carried unanimously without any discussion.

Mr. DORE asked whether it would be necessary to make a call?—The CHAIRMAN replied that the shareholders had before them the exact financial position of the company, and it was for them to decide whether or not a call should be made.

After some further conversation it was decided that no call should be made at that meeting, Mr. GOULD stating it as his opinion that the mine would nearly pay its way in the current quarter.

Mr. WILLIAMS said they had at West Godolphin the best tin in Cornwall. The ore was exceedingly rich, and very easily dressed. The Pink lode was buncy in character, but it contained nearly pure tin in parts.

The CHAIRMAN pointed out that Bellingham's lode was of an entirely different character to the Pink lode. It was more continuous.

A vote of thanks was passed to the agents for their energy and economy, and a similar compliment to the Chairman closed the meeting.

#### YEOLAND CONSOLS (LIMITED).

The third annual general meeting of shareholders (postponed from February last) was held at the offices of the company, Fenchurch-street, on Thursday.—Mr. HENRY WILLIAM RIPLEY, the Chairman of the company, presiding.

Mr. EDWARD A. RICH (the secretary) read the notice calling the meeting; the report and accounts were taken as read.

The CHAIRMAN said it would be his duty to make a few remarks before proposing the adoption of the report. He could well understand that many of the shareholders must have felt some little regret when they received the report of the directors, containing, as it did, not very definite results. With this feeling the directors fully sympathised; but the shareholders must bear in mind that last summer was an exceptionally dry one; in fact, there was a great drought, and he was told that such a dry summer had not been experienced for 15 years. Therefore, for a time they had no water for dressing the ore and working the mine; but there was a subject of congratulation, which was, that although they had not been able to produce much tin, still a very important work had been carried out—much more important than that which he alluded to when he last had the pleasure of meeting the shareholders. He thought it would be more agreeable to the shareholders if he placed himself in a position to speak personally on this matter; therefore, he went down to the mine a short time since, and he was free to confess that when he arrived there, and saw the change throughout, both as regarded the appearance of the mine and the progress which had been made, his heart rejoiced, because it appeared to him that they had accomplished a great deal, and held out hopes of better things in store. One great work, which cost a good deal of money, was the completion of the leat; and this appeared to him to be capable of furnishing everything as regarded water. Beyond this they had completed the laying of the pipes for conveying the water, which acted remarkably well. The only question was as to the size of the pipes; but if the directors had erred at all, they had erred on the side of safety in having the pipes larger than was absolutely necessary. Passing from the pipes he next came upon the turbine, which had been lately erected under the care of their friend, Captain Richards. He thought the erection of that turbine did Captain Richards infinite credit. He then visited the stamps, of which they had 28, which were working as easily as could possibly be wished, as also was the pulveriser. From that point he proceeded to the dressing-floors, which seemed to be very perfect indeed. Those dressing-floors had been enclosed, because Captain Beare, to whose care the dressing of tin was confined, had often drawn attention to the fact that when the weather was wet he was unable to dress the tin, and therefore at Captain Beare's suggestion the directors had had the dressing-floors covered in, and he hoped eventually they would be perfectly enclosed, so that not only would they be able to dress the tin in any weather but also what tin they had would be perfectly safe, and there would be no fear of the company being deprived of any portion of it. A burning-house had also been erected. The shareholders might say that on previous occasions they had been told that a burning-house would not be required as the

shipments of pig-iron from the Tees have been large of late, and they are increasing; the increased shipments are, of course, to Scotland. Scotland has long been the best customer for Cleveland iron, and we have also the fact that the iron in the warrant stores is being increased, which shows that the extreme low rates at the present time are stimulating some buyers for consumption, and also inducing capitalists to invest their money in iron in order to wait for the rise which must come with increased demand at no distant date it is hoped. For the present month the shipments of pig-iron have averaged 3500 tons daily, which is from 500 tons to 1000 tons per day above the quantity for the previous months of the year. At that rate the shipments for the month as a whole must be expected to be over 80,000 tons, a very satisfactory month's work. Manufactured iron and steel has been exported at a rate which is above an average, so that it is apparent that the amount of work done of late is large. The rail trade has been extremely flat of late. The iron rail trade is, indeed, almost extinct, but the steel rail trade has also been very flat; but we learn that Messrs. Bolekow, Vaughan, and Co., have obtained an order for no less than 25,000 tons of steel rails. These rails are, we believe, for the use of railway companies in India.

#### MINING INSPECTORS, AND INSPECTIONS OF MINES.

It is a singular fact that whilst the great body of miners through their agents and Parliamentary officials, are crying out for the appointment of additional Inspectors, there are some who consider that inspection as it now exists is of no good whatever. This was specially referred to last week at the annual demonstration of the Cleveland miners, when Mr. BURT, M.P., in alluding to an article which appeared in a well known monthly under the head of "Mining Inspection a Sham," said that during the last 30 years inspection of mines had been attended with excellent results. This we believe will also be the unqualified opinion of all who have any acquaintance with the subject. Acting upon the advice of Prof. PHILLIPS and Mr. BLACKWELL, who had been appointed by the then Government to examine the coal mines in the different parts of the kingdom, and to report with respect to them, Lord CARLISLE, in July, 1850, introduced a Bill into the House of Lords, since known as the first Mines Inspection Act, it having passed through both Houses. It was only an experimental measure, limited to five years, but the importance of it being fully recognised it was continued. From the very first year of its coming into force its value became evident from the decrease which took place in the number of mining fatalities, and this cannot be disputed, seeing that there are reliable Government returns to bear it out. But whilst there has been a decrease in the number of persons killed by mining operations compared with the number employed, it must not be overlooked that since the passing of the Act of 1850 mines have been sunk to far greater depths than was ever anticipated 30 or 35 years ago, and it will be admitted on all hands that the greater the distance from the surface so increases the difficulties as regards the explosive gases and ventilation, whilst the danger to the workmen becomes intensely magnified as well. Yet with these greatly increased dangers and difficulties, which have been growing of late years at a very rapid rate, it is assuring to find that the death rate of the workmen has gone on decreasing, a proof in itself of the value of the inspection of mines by Government officials. In 1851, when the Act relating to Inspectors may be said to have come into operation, there were 984 deaths caused by accidents in collieries under the Coal Mines Acts, making 1 death for every 219 persons employed in and about the mines, but in the following year the death rate was 1 in 226. Taking the 10 years from 1851 inclusive the deaths were 10,018, giving an average of 1 killed for every 245 persons employed. The end of the next 10 years shows still more satisfactory results, as the deaths averaged only 1 for 300 employed. Taking the next cycle of 10 years there was a still further diminution in the death rate, which was only 1 for every 425 persons employed, and for the three years ending in 1883 only 1 person was killed out of 483 who were working. It will be seen that in the course of about 33 years the deaths from accidents in coal mines was reduced more than one-half, despite the increased danger that had taken place by the greater depths to which mines had been sunk and the increased difficulties that consequently had to be encountered and overcome in connection with explosive gases and ventilation. Surely these facts speak strongly in support of the view that mines inspection, so far as it has gone, has been a most decided success, more especially when it is taken into consideration that with the exception of the ventilating fan no new scientific appliances of any importance have been brought forward in connection with the safe working of mines. But the Inspectors of Mines have done valuable service in doing all they could to prevent the use of gunpowder in mines of a fiery character, and in having adopted the best safety-lamps. They have listened to the complaints of the workmen, visited and inspected mines, and pointed out what was essential to the safety of the workmen, and seen that what they required was carried out. It may be that still further safety will be obtained by the appointment of additional sub-inspectors, and to such appointments there are few even amongst our mineowners who will demur. But the men so appointed should be something more than ordinary miners, sympathising alone with the men, and in strong antagonism to the employers. They should be acquainted with the laws regulating the movements of gases and all aeriform fluids, and in general mining education equal to the average certificated manager whom they would have to advise after they had inspected a mine and discovered what they considered required altering or doing away with. To resort to an inferior class of men would simply be to bring mines inspection to a point that would render it in many cases something worse than useless. It might be stated that under the Mines Regulation Act of 1872, men employed in a mine may, from time to time, appoint two of their number to inspect the mine at their own cost; but this does not appear to be of much significance, and for various reasons. The men who have to inspect on behalf of the workmen have to do so accompanied by the owner or manager, or one or more officers of the mine, and then to write a report of the result of the inspection in a book kept for the purpose. This places such men in a most invidious position, for it is not every workman who will register anything that will be detrimental to the position of the manager or other official, on whose good-will the nature of their work in all probability depends, for there are good and bad places in all coal mines. In the appointment of Inspectors, for the purpose of assuring to the workmen in mines the greatest possible amount of safety, it is necessary that the persons selected for such an important office should have a fair amount of general education, as well as be practically acquainted with mining and mechanical engineering, and entirely outside the influence of mineowners, managers, or working miners. Mining inspection, as we have pointed out, has done a great deal of good by greatly lessening the death rate from mining accidents, and in the new appointments that we are told are about to be made it is to be hoped that the existing standard with respect to ability and education will not be materially lowered, if, indeed, it is lowered at all.

#### THE EXHAUSTION OF OUR COAL FIELDS.

The probable exhaustion of our coal fields, and the consequent destruction of all our great industries, and our extinction as an important commercial nation, for many years past has been dilated upon by all kinds of persons, scientific and practical, as well as by those who have no claim whatever to either of those qualities. Another addition to the number has just been added by a gentleman who has published his views in a pamphlet, entitled "A Warning Voice from the British Coal Field," and published by a Liverpool firm. The writer evidently considers that the time has arrived when the output should be limited, and suggests, indeed, that it should be reduced by one-sixth, when the price would go up 2s. per ton. This looks very well, so far as it goes, but the writer does not tell us how it would affect the manufacturers and the working classes throughout the country. In the first place, there would be about 100,000 miners that would have to be provided for in some way or other, whilst the advance in the price of coal would also greatly decrease all kinds of manufactures for which coal is required, immensely reduce our exports, throw thousands of mechanics, factory hands, labourers, and, indeed, all kinds of workers out of employment, and, at the same time, inflict a serious injury upon our mercantile marine. It would, in fact be giving a very large proportion of our trade to foreign competitors, so ruining employers and workmen, for these could not live by the home consumption of what they produce, and it is well known that our manufactures maintain their position in the markets of the world solely by being able to sell at a lower price than their foreign competitors, and this they can only do by being able to purchase fuel and other kinds of raw material at a comparatively moderate rate. But without limiting the output of coal there are other means by which the exhaustion of our coal fields may be retarded, and that is by lessening the waste in its production, and adopting the most economical methods in consuming it. In both of these respects a good deal has already been effected, and no doubt a great deal more remains to be done, for the limits of economy in the consumption of fuel for all purposes there is every reason to believe is still a considerable way off. In the smelting of metallic ores, and in the producing of steam, the expenditure of fuel has already been brought down to a low point as compared with former years. At the Clyde Ironworks, in 1796, we are told by Mr. Mushet it took 9 tons 10 cwt. and 20 lbs. of coal to produce 1 ton of pig-iron, but ironmasters have worked hard and successfully to reduce the quantity required, more especially during the last 15 or 20 years, and have done much by the introduction of the Whitwell and Cowper hot-blast stoves. In 1874 the coal consumed per ton of pig-iron made was 2.55 tons, in 1878 it was 2.21 tons, in 1881 it was 2.15 tons, and now it is only about 2.5 tons. Of course some iron ores require much less fuel than others, for whilst a ton of the Lancashire and Cumberland pig will be made with about 38 cwt., the Cleveland and some others will take from 42 cwt. to 48 cwt., but the averages we have given show how very effectually the producers of iron have worked hard to reduce the expenditure of fuel in smelting the ironstone. In the raising of steam, and the making of gas and coke, marked economies have also taken place of late years. Great improvements have been made in the construction of boilers, all having for their object the minimising of the consumption of fuel, in some instances the introduction of water tubes or generators has been found most effectual, giving a greater amount of heating surface and better circulation than is obtained from the old type. Steel boilers are also found to require less fuel for raising a given quantity of steam than those made of iron, whilst the superheating of the steam has proved economical. In all kinds of engines inventors have been successful in obtaining increased power with a less amount of steel, and of course of the raw material which produces it. A larger quantity of gas and of a high illuminating power is now obtained from coal than was formerly the case, whilst there has been a marked decrease in the quantity required for making coke. Indeed, for almost every purpose for which considerable quantities of coal are required, economic appliances have been successfully introduced, and this will continue to be the case, for mechanical skill and science will continue to progress in the direction of affecting still greater economy in the consumption of coal for all purposes.

Coming to the question of the exhaustion of our coal fields, we are told that Mr. Ellis Lever and Mr. Sydney Lupton consider that they will be depleted in about 110 years. We are not aware that either of these gentlemen can be taken as authorities on the subject, and their estimate is very far below that of Mr. Hull and Mr. Price Williams, whose views were quoted by the Commissioners on Coal, and who calculated that, admitting that there would be an annual increase, the quantity left would last about 350 years from the present time. But even this latter view is looked upon as being lower than it ought to be, seeing that the diminishing ratio at which coal must be consumed when it becomes scarce and costly had not been taken into consideration. We certainly know the drain that has been made upon our coal fields in the past, but no one can predict what it will be in the future, and on this point the Royal Commission which was appointed in 1870 refrained from giving an opinion, for, as Mr. Hull says, it was a question to which no definite answer could be given. It may also be said that it does not follow that the consumption will not increase year after year, but in all probability the reverse will be the case. This is indicated by the fact that, despite the increased quantity of coal exported last year, the output was 3,693,152 tons less than what it was in 1884. Again, the probability is that new fields of coal will be discovered, whilst, as the late Mr. Woodhouse stated, there was no telling the quantity of coal that would be found below that mighty formation, the magnesian limestone. But of the fields of coal of which we have knowledge, and reported upon to the Royal Commission we have alluded to, we find that in South Wales and Monmouthshire there is sufficient coal to last 1300 years at last year's rate of production.

Taking the Midland field, which comprises Nottinghamshire, Derbyshire, and the West Riding of Yorkshire, there is sufficient coal at the rate of last year's output to last 1250 years. But if we take the coal in the exposed and concealed fields in the kingdom at 137,000,000,000 tons, and assuming that there would be increase over the production of 1884 in the future there would be sufficient to last for 885 years. Under these circumstances there does not appear to be any necessity for causing an alarm with respect to the exhaustion of our stores of fuel, whilst to attempt to limit and reduce the output would only result in signal failure. Cheap coal is necessary for the support of our manufacturing and commercial existence, and no arguments will induce holders of it to withhold all that is required by consumers, and the price of it will be ruled in the same way as that of any other commodity.

Messrs. FRY, JAMES, and Co. write under date June 26.—Copper:—The market has been more steady since our last, but it has been at the same time inactive, and Chillan is slightly lower. Iron continues dull, and Scotch pig is slightly lower. Tin has again experienced some sharp fluctuations, but is, on the whole, from 2s. to 2s. 3d. per ton dearer than it was a fortnight ago. The operators for a rise in prices have made great success in concentrating the bulk of the stock into their own hands, and thus gaining command of the market. Lead continues to be less offered, and is again rather dearer to buy. Spelter is without feature. Tin-plates steady.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr Wm. ANNOT, of Tokenhouse-yard, are given in tabular form in the Stock and Share List page of the Journal.

#### Meetings of Public Companies.

##### THE VENEZUELA-PANAMA GOLD MINE COMPANY (LIMITED).

The second ordinary general meeting of shareholders was held at the Cannon-street Hotel, on Saturday, June 20, Mr. GEORGE BAIRD, the Chairman of the company, presiding. Mr. F. R. GRIGG (the secretary) read the notice calling the meeting, also the minutes of the last meeting, which were confirmed. The report and accounts were taken as read.

The CHAIRMAN said—Gentlemen, I take this opportunity of telling you that the directors consider the work of the past year is, on the whole, satisfactory, although the accounts show a loss of 12,000l. But we cannot take last year's work as that of a mine in full working order, because we only began to work the mine as it ought to be worked from the beginning of this year. Last year was devoted entirely to the opening up and developing of the mine, and furnishing all the necessary plant and other things which we required. We, as you know, started upon the calculation of 40,000l., covering everything, but upon opening up the mine we found that amount was not sufficient. We had to go deeper than we expected to find payable quartz; but we did not like to bother the shareholders by asking for extra capital, so the directors amongst themselves have found what was necessary to complete the work of fully developing the mine, which was a considerable sum, and amounted to nearly 40,000l. more than we calculated. It is satisfactory to be able to say that all our expectations are being realised. The main shaft is now down 450 feet and 12 feet below the sixth level. The quartz has been gradually improving in richness, and we are now in very payable quartz—that from the bottom yielding 2½ ozs. per ton. During the first three months of this year we worked very well, and for January we had remittances of 8400l., for February 11,800l., and for March 13,300l. But half of the January remittance belonged to last year, so that in reality we must take only two and a-half months, during which we worked 5436 tons of quartz, and produced 7455 ozs. of gold, which realised 29,420l., equal to 5l. 8s. 3d. per ton, and shows an increase of 15s. 6d. per ton upon the average obtained for last year. (Hear, hear.) I am sorry to say that after that two and a-half months' work we have had absolutely no water to work with. There has been such a drought in the country as has never prevailed there before, and we have been three months absolutely standing still. The last telegram from the mine gives us hope that we may now have water. It was sent off on the 11th and received here on the 16th, and in it our superintendent informs us that there have been increasing rains. I had hoped that the last telegram would have been more encouraging; I hoped they would have begun work. But we cannot blame our superintendent for having no rain. This of course is only a temporary loss, and directly we begin work again I am perfectly certain the superintendent and other officers will use their best endeavours to make up for lost time. The time has not been actually thrown away, for during the three months the superintendent employed all the contract men he could in putting the place in thoroughly good working order, and there is no mine in Venezuela so fit to work as ours. I do not know, gentlemen, that I have anything more to say. I hope next year we shall be able to give you a better balance-sheet. I have only, in conclusion, to move the adoption of the report and balance-sheet for the year 1884. I repeat that our mine shows better than it has ever done before, and I hope when we once get the rains we shall increase our yield up to 4000 ozs. of gold per month, which I hope will continue. (Cheers.) I propose the adoption of the report and balance-sheet, and shall be happy to answer any question.

Several shareholders at this moment having entered the room, the CHAIRMAN continued—Gentlemen, we waited a quarter-of-an-hour before beginning, but I will tell you what we have done. We have confirmed the minutes of the last meeting, and have just now proposed the adoption of the report and balance-sheet for the year 1884. If any shareholder wishes to ask any questions I shall be very happy to answer them. Mr. Imbert, as legal representative of the estate of the late Mr. Palazzi, I should like to know whether you have any questions to ask?

Mr. IMBERT having replied in the negative, Colonel the Hon. G. F. H. VILLIERS seconded the resolution, which was put and carried unanimously.

The CHAIRMAN: Gentlemen, the next business is the re-election of directors. If there is no objection, I propose, as it will be more convenient to take the confirmation of Col. Villiers' election and the election of the other two gentlemen in one vote. I, therefore, propose the election of Col. the Hon. G. F. H. Villiers to a seat at the board be confirmed; and that Lieut.-Col. Edward Raikes and Mr. Paul Bechet, the two directors who retire by rotation, be re-elected.—Mr. LEOPOLD SALOMONS: I second that.

The motion was carried. Mr. LEOPOLD SALOMONS proposed the re-election of the auditors—Messrs. Broads, Paterson, and Co., and that the remuneration be increased from 60 guineas to 100 guineas.

Mr. DALRYMPLE seconded the motion, which was carried.

The CHAIRMAN said that concluded the business of the meeting.

Mr. DALRYMPLE: Before we part I beg to propose a cordial vote of thanks to the Chairman and directors for the great attention they have paid to the business of the company.

Mr. LEOPOLD SALOMONS seconded the motion, which was carried.

The CHAIRMAN: Gentlemen, I beg to tender you our hearty thanks for the kind way in which this vote has been proposed and carried. You may be perfectly certain we will do our best to promote the success of the concern. I may say that the directors on this side of the table hold nearly half the shares of the company, and therefore it is to our own interest to do all we can to make the company a success. (Hear, hear.) I hope by this time next year we shall show very good results. I have every confidence in the property, in fact even more than I had a year ago. (Cheers.)

The proceedings then terminated.

##### WHEAL GRENVILLE MINING COMPANY.

A general meeting of shareholders was held at the offices of the company, Union-court, Old Broad-street, on Tuesday.

Mr. R. W. GOULD in the chair.

Mr. D. JULYAN (the secretary) read the notice convening the meeting, and the minutes of the preceding meeting were read and confirmed. The statement of accounts for 12 weeks, ending June 5th, showed that the tin sold—127 tons 12 cwt. 0 qrs. 26 lbs.—realised 6101l. 18s. 11d., and the labour costs and merchants' bills together amounted to 4223l. 13s. 2d. The balance in favour of the mine was 2127l. 8s. 7d.

The following report from the agents, dated June 8th, was taken as read:—

We beg to hand you the following as our report of this mine:—The 205 is driven east of Gould's shaft 45 fms. 2 ft., the lode in which is worth 6l. per fathom. The 190 east is driven 78 fms. 1 ft. 5 in.; present end poor and suspended. The winze below said level is down 4 fms. 4 ft., worth 10l. per fathom. The best part of the lode has dipped east out of the winze. The 178 east is driven 147 fms. 5 ft. 2 in., the lode in which is worth 5l. per fathom. The 165 east is driven 175 fms. 4 ft. 11 in.; present end worth 6l. per fathom. These men are putting up a rise in back of this level, and when communicated the end will be started with a full force of men; the rise produces stamping work. The winze below the 153 east is down 11 fms. 2 ft. 6 in., the lode producing low price tinstone. The 150 east is driven 282 fms. 1 ft. 3 in.; the lode in the present end is disordered by a patch of granite. Since our last general meeting we have opened up a rich section of ground here about 8 fms. in length, worth from 50l. to 60l. per fathom. We have communicated the 165 west level with the western shaft, which has well ventilated this part of the mine. We are now engaged clearing this level west of the western shaft, and in a day or two we shall start the end. The 150 west end produces low price tinstone. The 140 west is driven

37 fms. 2 ft. 4 in., and is worth about 10½ per fm. The 130 west is driven 70 fms. 4 ft. 9 in., and is worth 8½ per fathom. The 120 west is driven 58 fms. 2 ft. 7 in., and is worth 6½ per fathom. The winze below the 90 west is down 14 fms. 5 ft. 6 in., the lode in which is worth 7½ per fathom.—Stopes: The 178 east stope is worth 18½ per fm. Three stopes in the back of the 165 east are worth together 55½ per fm. No. 1 stope in the back of the 150 is worth 20½ per fm. No. 2 stope in the back of the 150 is worth 60½ per fathom. We have 20 pitches at work on tribute, by 58 men, at an average tribute of 9s. 4d. in 17 for tin, to be paid at the rate of 44½ 6s. 8d. per ton. Since your last general meeting we have sold 127 tons 12 cwt. 0 qrs. 26 lbs. of tin, and we hope during the next 12 weeks to sell about 132 tons. The mine, on the whole, is looking very well indeed, and with present price for tin we can work at fair profit for some time to come. Men employed, 180; boys and girls, 90; total 270 persons.

The CHAIRMAN said they were met under happier auspices than had been usual with them, he thought, for no shareholder who had given any amount of attention to the report of the agent and the statement of the figures, which had been in their hands for a week or ten days, could have come to the meeting with any other feelings than those of considerable satisfaction. It was a fact that the mine had improved to a very considerable extent, and that the financial position of the company had improved with it; and he was, therefore, very much pleased, as the mouthpiece of the committee, to be able to draw the attention of the shareholders to two or three features in the statements presented, which were of great interest, and also of considerable moment. Whilst doing this, he would ask them to be good enough to bear in mind that the figures presented contained the results for the 12 weeks only, whereas the former quarter comprised 16 weeks. He asked them to bear that fact in mind, because he would have to refer to the figures of the quarter before to make comparisons, so as to enable the shareholders to form a sounder idea of the progress which had been made than could otherwise be formed. It would be remembered that at the meeting in March the committee informed the shareholders that between the date of the agent's report then presented and the day of the meeting, an improvement had taken place in the 150 level east which appeared to be of such moment and such importance that they had directed Capt. Hodge to attend the meeting, in order that the shareholders might be placed in possession of the latest information with regard to it. Capt. Hodge accordingly attended the meeting, and it would be within their recollection that he had reported the lode, which had been worth 8½ or 10½ to the fathom a few days before, to have suddenly improved, and at the time of meeting he placed the value at from 30½ to 35½ to the fathom; but Capt. Hodge added in his usual cautious manner, that he would not be surprised on his return to Cornwall to find, on a careful assay of the stuff, that it was of much greater value than that. He (the Chairman) was very happy to say now that the improvement had not been a mere flash in the pan, nor a mere Will-o'-the-Wisp, here to-day and gone to-morrow, but that it had continued steadily until now that about 8 fathoms had been driven through, the end was worth from 50½ to 60½ to the fathom. The total width of the lode was not known as neither wall had been reached. Just to show how that improvement had affected the intrinsic value of the property he would mention that above that improvement they had 35 fathoms of backs to come away, and below it, down to the 165 fm. level, taking into account the underlie of the lode, they had about 20 fathoms more; that was about 55 fathoms. Multiplying that by the 8 fathoms they had driven through it would be seen that they had 440 fathoms of rich ground to bring away; so that he did not think it would be any exaggeration on his part to say that that improvement represented something like from 15,000 to 20,000, worth of tin brought into view and placed within their reach since the last meeting. (Hear, hear.) This was, therefore, a very important improvement. As Captain Hodge mentioned at the meeting, he had been expecting an improvement in that direction and in the level underneath for months before the last meeting, and his expectation was fully borne out by one of the highest mining authorities in Cornwall, whose report was obtained by independent people, and which he (the Chairman) had been privileged to see. This authority mentioned that he fully expected that they would have two or three runs of rich ground in that direction before they reached the boundary, where, as they knew from the working of West Frances, there was a large deposit of tin for them to take away some day. This was all the more satisfactory because in a conversation which he had with Captain Hodge two or three weeks ago their agent mentioned that he was again expecting to find another rich run of ground before many more fathoms were driven in the 150 in the same direction. This 150 would be driven with all possible speed eastward, as would also the next level below, the 165, and as soon after that as possible the 178, only 28 fms. behind the 165, would be pushed on with the view of getting into the same run of ground. They had in the mine now six stopes at work, as against seven last quarter; but as an evidence that the mine had somewhat improved in other directions than in this particular spot, he would ask them to note in the agent's report that the aggregate value of the six stopes was now 153½ per fathom, or an average of 25½ 10s. per fathom, as compared with an aggregate of 84½ for the seven stopes on the last occasion, or an average of 12½ per fathom; so that taking the stopes as a whole throughout the mine, the lode must have very considerably improved. They had 20 pitches at work as against 18, and these had certainly not gone backwards, as they were let at 9s. 4d. in 17, whereas they were paying 9s. 6d. in 17 at the last meeting. In the western part of the mine an indication had been effected between the two shafts at the 165 fathom level, and in this part of the mine four ends were now being driven westward, the 120, the 130, the 140, and the 150. Some of the shareholders would probably remember that some nine years ago the whole of the tin raised came from this neighbourhood, and at that time they were getting from 16 to 17 tons of tin a month; and they were now hoping to increase the returns from this part of the mine again. They would then have 10 ends going, five in the eastern, or new part of the mine, and five in the western part. He was afraid their men had not been earning very large wages; but he hoped with an increased price for tin and the improved condition of the mine that they would share in the prosperity of the company. (Hear, hear.) Turning to the figures, it would be seen that they had sold during the past 12 weeks 127 tons 12 cwt. of tin, which was a monthly sale considerably in excess of the monthly sales of the previous 16 weeks, when the total amount sold was 141 tons, or a monthly average of 35 tons 9 cwt., as against a monthly sale of 42½ tons in the past quarter, or an increase in the amount of tin sold of over 7 tons a month. This was a very considerable increase and it was all the more satisfactory when they considered that it had not been achieved by any sudden or spasmodic effort on the part of the agents and dressers at the end of the quarter, or by any cleaning up of the floors so as to make up the sales; but the increase had been gradual. The average monthly sale in the preceding quarter was 35 tons 9 cwt.; in the first month of the past quarter it had been 38 tons, in the second 43 tons, and in the third 45 tons. (Cheers.) That rate of increase was, to his mind, exceedingly satisfactory, and the figures revealed to them that not only had the mine made real and healthy progress during the past quarter, but that extreme caution had been used by Capt. Hodge in expressing, as he did in his report, the hope that in the current quarter he would be able to return 132 tons of tin. He (the Chairman) hoped so too; but he confessed that he would be exceedingly disappointed if the returns were not more than 132 tons. He believed he was warranted in hoping that the returns would be nearer 140 tons for the quarter than 132 tons. For the 127 tons of tin sold they had received 6126½ 18s. 11d., being an average of 48½ 0s. 4d. per ton, as against the average during the previous quarter of 44½ 8s. 3½d., so that during the past quarter they had received 3½ 12s. per ton more for the tin sold than the average of the preceding quarter. There had been a very much larger rise than that from the beginning to the end of the quarter, but they had not reaped the full benefit of that improvement in the quarter. If they had received during the quarter the price obtained at the last sale in the accounts, they would have made an additional profit of 660½; but the first sale in the quarter realised only 46½ 7s. 6d., and that was for about 60 tons out of the 127 tons sold, while the other monthly

sales of about 41 tons realised respectively 47½ 12s. 6d. to 48½ 17s. 6d., while the sale on the 4th June realised 53½ 5s. per ton for 20 odd tons. On the other side of the account it would be found that there had been a considerable decrease in the cost of getting the ore. The costs for labour and agency had been 277½ 0s. 7d.; for merchants' bills, 1052½ 12s. 7d.; and for lords' dues and all the other expenses—charging everything to the latest possible date—283½ 4s. 8d., or an aggregate of 4506½ 17s. 10d., being at the rate of 35½ 6s. 4½d. per ton of tin sold, as against 39½ 6s. 8½d. in the previous quarter; so that the costs had decreased to the extent of 4½ per ton on all the tin sold. These figures contrasted favourably with those of any other mine in Cornwall selling only a similar quantity of tin. The rate of profit had increased in a wonderful degree—from 5½ 2s. 9d. per ton of tin sold to 12½ 13s. 11½d., or an excess of profit in the past quarter of 7½ 10s. 2½d. per ton. (Cheers.) He thought he had said enough to show that their position in every respect was one upon which they might congratulate themselves thoroughly, and he anticipated that at the next meeting the committee would be able to present as good, if not a better, statement of accounts. (Hear, hear.) The Chairman concluded by moving the adoption of the statement of accounts, together with the agents' report.

Mr. F. G. LANE, in seconding the motion, stated that since the accounts were made up there had been a sale of tin realising 1215½, which, added to the amount previously in the bankers' hands, gave them 3545½ without a single liability. (Hear, hear.) There would be a cost due in the first week in July, but there would be a sale about that time which would probably nearly meet the month's costs. The committee had visited the mine since the last meeting, and they could fully confirm the agent's report as to the state of the machinery, which was in every way satisfactory. The last sale of tin realised 54½ 10s., as against 53½ 5s. at the preceding sale. He believed that eastward their mine would be second to none in Cornwall. (Hear, hear.) They had received a promise of a renewal of the leases, which would fall in September. Mr. Lane added that the company had in Col. Fortescue one of the most liberal, if not the most liberal, landlords in Cornwall, and he trusted that in the future their arrangements with their landlord would be as mutually satisfactory as they had been in the past.

The CHAIRMAN and Mr. WILLIAMS fully endorsed Mr. Lane's remarks with regard to Col. Fortescue.

The motion was then unanimously adopted.

The CHAIRMAN moved that a dividend of 5s. per share should be declared, payable forthwith. This would absorb 1500½, and leave 120½ to be added to the reserve.

Mr. W. BELLINGHAM seconded the motion which was adopted and those shareholders who were present were at once handed their dividend warrants.

The CHAIRMAN, in reply to Mr. WILLIAMS, stated that boring machinery had been tried, but the character of the ground was such that hand labour was quite as rapid and far cheaper than rock-boring machinery.

The CHAIRMAN moved a vote of thanks to the agents for the energy, perseverance, and economy they had exercised in the management of the mine.—Mr. DORE seconded the motion, which was agreed to.

On the motion of Mr. BUMPAS, seconded by Mr. WILLIAMS, a vote of thanks was passed to the Chairman and committee of management, and the meeting then closed.

#### WEST GODOLPHIN MINING COMPANY.

A general meeting of shareholders was held at the offices of the company, Union-court, Old Broad-street, on Tuesday,

Mr. F. G. LANE in the chair.

Mr. D. JULYAN (the secretary) read the notice convening the meeting, and the minutes of the preceding meeting were read and confirmed. The statement of accounts for the 12 weeks ended June 4 showed that the tin sold—19 tons 17 cwt. 1 qr. 3 lbs.—realised 991½ 18s. 8d. The labour cost amounted to 817½ 1s. 10d., and the merchants' bills to 360½ 0s. 8d. A balance in favour of the mine was shown amounting to 281½ 0s. 1d.

The following report from the agents was taken as read:—

June 9.—We beg to hand you the following report of this mine for your general meeting fixed for the 23rd inst. The 92 fm. level has been extended south-east since your last meeting about 2 fms., and intersected Pink lode; we have driven on its course east about 9 ft. The lode in the end is disordered and poor. In extending this end 6 ft. eastwards we expect to cut the eastern division or main part of the caunter, when we hope to drain and communicate the winze coming down from the 80. We shall then push on through the caunter and prove Pink lode eastwards. We have doubts of the good deposit of tin continuing downwards, striking away westwards from a point 5 fms. below the 80 in the winze, and in line with the rise of same in rising east to the 70. This we purpose to prove after communicating the winze by stoping the western end. If we prove correct we shall have about 10 fms. to drive west to catch the run of same. The 92 fm. level has been extended north-west 5 fms. and intersected Bellingham's lode, in which we have driven through 6 ft. and no north wall met with. We are pushing on to get through the lode fairly, following we shall commence to open on its course. About 4 ft. of the lode gone through, and showing in the western side is productive for copper and tin ores; and although we have opened but little on it, what we have seen is a great improvement to the level above in the junction. In this point of operation we wish again to remind you that we do not expect any appreciable improvement until we have driven a few fathoms both east and west of this junction, as we found in the upper levels, where the lode was rich approximately both sides for 80 fms. in length. This lode (Bellingham's) is the Trunk lode in this district, and we were never more sanguine of its developing into a rich lode in depth than we are at present. There is a feature in connection with cutting this lode in the bottom of your mine which we wish to draw your attention to, and what we very much like to see—the 80 fm. level did not satisfactorily drain the back of the level, no doubt for the reason that the lode is widened in this point and a portion still standing north, but immediately we tapped the south or footwall in the 92 we drained the back of the 80 (as well as the bottom); this indicates that in reaching the 92 the lode is again getting concentrated, and the draining the water was also a prominent fact in the cutting of the lode at the 50 and 60 fm. levels where the lode yielded so richly. We purpose shortly to drive north at the 80, to prove what is standing in that direction. In the bottom of the 80 fm. level we have commenced to sink a winze on Bellingham's lode, about 25 fms. west of the junction. The lode we value at 7½ per fathom, and promises to improve as we sink. The 70 east on Bellingham's is in a lode 6 ft. wide; the leader part, about 18 in., is composed of oxide of iron, carrying at times stones of tin. The other portion of the lode on both sides is composed of chlorite or peach, yielding occasional good stones of yellow copper. In this level we always held out good hopes, and while the level advances, with the present prospect, we cannot speak too highly of its merits; the enlargement of this lode, the chlorite or peach took place only a few fathoms behind the end in getting away from the great cross-course, and, comparatively speaking, we are in a run of ground here and in granite similar to the Pink lode at the 80 and 70, and where directly the leader part becomes fairly productive. The chlorite yields tin in paying quantities, and will average 1 cwt. of tin to the ton of stuff. We have only just entered this favourable channel of ground, and we think we have good reason to hope for having a good discovery as we advance. We have ample ground before this end for a large and extensive mine in a large lode; the richest portion of our once famous rich neighbour, Great Work, stands out east and parallel of this level. The winze below the 80 on the junction and in the eastern division of the caunter lode is producing saving work for tin, now down 9 fms. We have 2 fms. more to sink to reach the 92. After communicating this we shall at once commence to stop and follow the run of tin in a good payable lode. The 80 west, on Pink lode, is now west of the junction about 29 fms. The lode in the end is small but promising. The stope in the back of the 80 west on Pink lode is worth 8½ per fathom. The stope in the back of the 70 east on Pink lode is worth 7½ per fathom. The stope in the bottom of the 50 west on Pink lode is worth 8½ per fathom. The stope in the bottom of the

80 west on Pink lode is worth 8½ per fathom. Two stopes in the back of the 40 west are worth together 16½.—Machinery: Pitwork: We have placed a larger lift in the bottom to cope with the increased water, and improved and strengthened our connections above to match the same, and provide for sinking when it may be decided on. We have made a perfect classification of our tinstuff direct from the stamps by erecting a separator, and with this we can turn over the double our present returns with only slightly increasing our dressing costs, when we may improve to that position. The falling off in value of the 80 stope east reduced our returns during the past month, but we hope to increase our returns again after communicating the 80 winze to the 92 on Pink lode. We predict that for our future meeting we shall have opened sufficiently on Bellingham's lode to show you some tangible proof that your property is a valuable one. All our machinery is working well. Men employed, 82; boys and girls, 22; total, 104 persons.

The CHAIRMAN said that he was sorry that he was not in a position to announce a dividend at that meeting, such as had just been declared at Wheal Grenville; but the accounts presented to the shareholders were, he considered, very favourable. They had during the past quarter sold 19 tons 17 cwt. of tin, realising 991½. The cost of obtaining that tin, including merchants' bills and every other charge, amounted to about 1180½, showing a loss of something like 80½ a month. He was sure that, looking at the agents' report, and seeing the quantity of work that was being done, the shareholders would say that the loss was a very small one. A large amount of development work had been done, and the prospects were very encouraging. At the last meeting a call of 1s. a share was made, which had enabled them to meet the loss incurred during the quarter, and they now had a cash balance in hand of 242½, besides assets valued at about 60½, the balance in favour of the mine being 281½. That was a position they had not been in for a very long time past. The accounts were charged up extremely close, and nothing to the good had been anticipated in any way. As regards the prospects of the mine during the current quarter, he might say that they had proceeded in a very satisfactory manner in opening out the mine, although the results had not yet been quite what they could have wished; but the prospects were such that he believed he would be able to congratulate the shareholders at the next meeting on having something more tangible than was now the case. In the 92 fm. level, south-east on the caunter, they had intersected the Pink lode. The lode so far had not come up to what had been expected from the dip of the tin ground going down in the 80, but the agents were not quite sure that they were really on the course of the lode. They were therefore sinking a winze from the 80 on the course of the lode, and this would enlighten them in a short time as to what they might anticipate further on upon the Pink lode. Their great success in the past quarter had been on Bellingham's lode. They had intersected and got through the lode, and the prospects were much better than they had been for a long time. They were now driving on Bellingham's lode in the 92 west, and in a winze in the 80 west the lode was going down worth 10½ per fathom. (Hear, hear.) Their prospects for opening a good piece of ground between the 92 end west and the winze going down from the 80 were such that he believed they would be able to make some satisfactory returns. Other parts of the mine were looking satisfactorily, with the exception of the stope in the back of the 80, which had fallen off, and this had been the reason for decrease in the last sale of tin; but looking at the report as a whole the mine was evidently in a better position, so far as the development was concerned than it had been in for a considerable time past. The whole of the machinery was in a satisfactory state, and a great improvement had been effected in the dressing arrangements by the erection of a separator. He trusted that their anticipations with regard to the property would shortly be realised, and that at the next meeting they would have something more tangible to present than upon the present occasion. He moved the adoption of the statement of accounts, and the agents' report.—Mr. W. BELLINGHAM seconded the motion, which was carried unanimously without any discussion.

Mr. DORE asked whether it would be necessary to make a call?—The CHAIRMAN replied that the shareholders had before them the exact financial position of the company, and it was for them to decide whether or not a call should be made.

After some further conversation it was decided that no call should be made at that meeting, Mr. GOULD stating it as his opinion that the mine would nearly pay its way in the current quarter.

Mr. WILLIAMS said they had at West Godolphin the best tin in Cornwall. The ore was exceedingly rich, and very easily dressed. The Pink lode was buncy in character, but it contained nearly pure tin in parts.

The CHAIRMAN pointed out that Bellingham's lode was of an entirely different character to the Pink lode. It was more continuous.

A vote of thanks was passed to the agents for their energy and economy, and a similar compliment to the Chairman closed the meeting.

#### YEOLAND CONSOLS (LIMITED).

The third annual general meeting of shareholders (postponed from February last) was held at the offices of the company, Fenchurch-street, on Thursday.—Mr. HENRY WILLIAM RIPLEY, the Chairman of the company, presiding.

Mr. EDWARD A. RICH (the secretary) read the notice calling the meeting; the report and accounts were taken as read.

The CHAIRMAN said it would be his duty to make a few remarks before proposing the adoption of the report. He could well understand that many of the shareholders must have felt some little regret when they received the report of the directors, containing, as it did, not very definite results. With this feeling the directors fully sympathised; but the shareholders must bear in mind that last summer was an exceptionally dry one; in fact, there was a great drought, and he was told that such a dry summer had not been experienced for 15 years. Therefore, for a time they had no water for dressing the ore and working the mine; but there was a subject of congratulation, which was, that although they had not been able to produce much tin, still a very important work had been carried out—much more important than that which he alluded to when he last had the pleasure of meeting the shareholders. He thought it would be more agreeable to the shareholders if he placed himself in a position to speak personally on this matter; therefore, he went down to the mine a short time since, and he was free to confess that when he arrived there, and saw the change throughout, both as regarded the appearance of the mine and the progress which had been made, his heart rejoiced, because it appeared to him that they had accomplished a great deal, and held out hopes of better things in store. One great work, which cost a good deal of money, was the completion of the leat; and this appeared to him to be capable of furnishing everything as regarded water. Beyond this they had completed the laying of the pipes for conveying the water, which acted remarkably well. The only question was as to the size of the pipes; but if the directors had erred at all, they had erred on the side of safety in having the pipes larger than was absolutely necessary. Passing from the pipes he next came upon the turbine, which had been lately erected under the care of their friend, Captain Richards. He thought the erection of that turbine did Captain Richards infinite credit. He then visited the stamps, of which they had 28, which were working as easily as could possibly be wished, as also was the pulveriser. From that point he proceeded to the dressing-floors, which seemed to be very perfect indeed. Those dressing-floors had been enclosed, because Captain Beare, to whose care the dressing of tin was confined, had often drawn attention to the fact that when the weather was wet he was unable to dress the tin, and therefore at Captain Beare's suggestion the directors had had the dressing-floors covered in, and he hoped eventually they would be perfectly enclosed, so that not only would they be able to dress the tin in any weather but also what tin they had would be perfectly safe, and there would be no fear of the company being deprived of any portion of it. A burning-house had also been erected. The shareholders might say that on previous occasions they had been told that a burning-house would not be required as the

stuff would not need calcining; that was perfectly true, but as they went further down there was a good deal of iron mixed with the tin, and this was submitted to the smelters, who said that unless the iron was separated from the tin they could not purchase the tin at all. Therefore the directors got permission from the landlord to erect a burning-house, which answered admirably, and the tin which had been sold since had fetched the highest price in the market. When he was there he had also erected an overshot wheel, the object of which was to bring the slime from the slime-pits, and pass it over a large number of frames, which he believed were all erected, and in perfect order. He was exceedingly pleased with the simple way in which the frames worked, and he believed they could all be worked with the assistance of two boys. Now these frames had been erected, and the slime had passed over them, there would be a saving of about 1 ton of tin per month which before was lost, and not only was it lost, but it also got the company into some discredit with the authorities, because it tended to make the river impure. But the official Inspector was there the other day, and expressed himself perfectly satisfied with what was being carried on. Before going further he should like to again refer to the turbine, because it was really due to the gentlemen from whom the turbine was purchased that some reference should be made to it. The directors had very considerable consideration and discussion as to the best means to be used as to dressing the tin and using the water, and as to whether they should have an overshot wheel or a turbine. Up to the present time turbines had not been used as regarded mining. But their friend, Capt. Richards, who had a large interest in the concern (as also had his family), had a long consultation with the board, and Capt. Richards was so thoroughly convinced that this would be the best course to pursue and less expensive, that he said he would stake his reputation that, if the directors allowed him to carry it out, it would be a success. At his (the Chairman's) request Capt. Richards went down to Kent to see a turbine which was at work there, and Capt. Richards, after seeing it, was so convinced it was the right thing that the directors gave him an order to put the turbine in hand. This was done and the turbine erected, and it was wonderful to see this little implement at work, working the ponderous stamps, and it was only due to the makers, Messrs Howes and Ewell, of Mark-lane, that this testimony should be borne. At present the turbine had only been working half-power, so that in future, when more stamps were required, it would still be able to do its work. Not being able to work the mine to any great profit, the directors thought it would be more agreeable to the shareholders, as it certainly was to the directors, that they should have the opinion of some expert in reference to the proceedings at the mine, and, therefore, they called in the assistance of their friend Mr. T. Rickard, who was present to-day, and would be able to give the shareholders all the information in his power. Mr. Rickard made an exhaustive report, in which he stated that the company had a property second to none, as regards lode and general facilities for working, and that although a large amount of money had been expended which was unproductive at present, yet it laid the foundation for future profit. As regarded the sale of tin, there had been two sales with most satisfactory results; and as the machinery was now pretty well all completed, he had no doubt the sales of tin in future would be large, and they would be made every month. The quality of the tin was first-rate, the average price having been nearly 50*l.* per ton. The main adit had been driven 62 fathoms beyond what it was when they last met, and they had now driven 232 fms. But as they got further in the air became impure, and some kind friend had communicated with the Government Inspector, who came over to the mine. Capt. Manley, he believed, took him in and explained all they were doing, and he was happy to say that with what he saw, and what they proposed to do, he felt quite satisfied that the ventilation of the mine would be perfectly good. As far as the works of the mine were concerned he thought that was about all that he need say. With regard to the figures in the balance-sheet he had no doubt some of the shareholders, in fact most of them would think, and the directors were willing to admit, the increase looked very heavy, but the works were very large and much more expensive than they at first contemplated. Mr. Thomas Rickard after his visit came and explained what he thought they ought to do, particularly with regard to laying out floors. Mr. T. Rickard had Capt. Beare present, and consulted with him, and he (the Chairman) should like to make a passing allusion to Capt. Beare. Mr. T. Rickard complimented him on what had taken place. The whole of the dressing-floors, &c., had been erected under his superintendence and advice, and Capt. Rickard complimented him on the way in which they had been laid out. He (the Chairman) thought that Capt. Beare was the best dresser of tin in the neighbourhood. To show that it was very heavy work he might mention that Capt. Beare had to sit up the whole of the night to watch the operation, but he never grumbled. His great idea and hope was to carry this thing to a satisfactory issue. He (the Chairman) thought it was only due to him that he should make these passing remarks. The figures in the balance-sheet, as before stated, were large, but it was generally thought that the most economical way would be to do the thing thoroughly and perfectly, although the outlay was much larger than at first contemplated, but the shareholders must bear in mind that although they alluded in their report to the possibility of making a call on the shares, up to the present time all the money necessary for this outlay had been provided by their friends and the directors, especially Messrs. Powys and Jones, so that up to the present time all these works had been carried out without a call on the shareholders for a penny. This showed the confidence that their friends had in the company. He believed that they were within measurable distance of getting very good returns for the shareholders. He could assure them that the work of the directors had been no easy work, but one of great care and anxiety, but as before they had taken no remuneration, and until there were monthly returns of tin he did not think that they were justified in doing so. He believed that they had fully earned it, and that the time was now coming when they would all derive benefit from their patience and hard work. In conclusion the Chairman moved the adoption of the report. —Mr. LIGHTFOOT seconded the motion.

After a pause, as no shareholder rose to address the meeting, the CHAIRMAN said he supposed his remarks and explanations had been regarded as satisfactory, and he would therefore put the motion.

The motion was then put and carried unanimously.

Mr. THOMAS RICKARD said he should be very delighted to give any information or throw any light upon the situation of affairs down at the mine. He should like, however, that it should take the form of questions, as he did not know what might be in the minds of shareholders. Perhaps they would like to ask some questions with regard to the prospect of production.

A SHAREHOLDER: How many tons a month is it capable of? —

Mr. THOMAS RICKARD replied that that was a very important question. The mine was capable of turning out twice as much as they had stamping power for. The recommendations given in his report were to the effect that they should first bring the works into a good condition for treating the stuff necessary for 28 heads. That was the number they had on the spot, and his estimate was that the cost for getting the stuff would be 6*s.* per ton. The actual cost, he believed, had been below that since his report was made. How much, however, of expenses for discovery work, for reconquering the ore was included in the 6*s.* he did not know, but certainly 6*s.* a ton was a very safe estimate for their stuff: 6*s.* a ton meant 12 lbs. of tin at 6*d.* per lb., supposing they made 2*s.* 6*d.* a ton they thought was a rate at which they could work from the present. As to further working it depended entirely upon their arrangements for stamping. There was stamping power, as the Chairman had told them, he believed, to twice the extent at present used, so that they could go up to 2000 tons per month, or in round numbers 24,000 tons per annum, that at 2*s.* 6*d.* per ton at the lowest rate for tin would be a very considerable return. But supposing they should get such stuff as they had in the old mines, then, of course, the estimate would be very much improved. Capt. Richards was able to give them information as to what the stuff produced from the old working had been; Mr. Richards estimate had been from actual assays 18 to 20 lbs. of

tin per ton. Since his visit they had worked, but how far their figures could be considered normal he could not state, he had not seen the mine since, but if they deducted 6*s.* from the rate they had realised whatever the margin was they would rely upon it in the future. If the secretary could tell them what the stuff had sold at per ton they could get at an estimate. —The SECRETARY: Just under 50*l.*

Mr. THOMAS RICKARD said that was 5*d.*, and they had got out about 28 lbs., so that they had been working at a very good margin, much better than he calculated. As regarded the general character of the mine, he thought, certainly, there were very few mines in Cornwall or Devon, or any other county of England, that would surpass the Yeoland. It was, decidedly, as it had been called by everyone who had gone there, one of the mother lodes of the country, and the prospect, if that ground was opened up properly, was certainly of opening up a very large and productive concern. The lode they were working upon had been proved first by the old workings of the Yeoland, which as a matter of record, had yielded stuff which was much better than they were reckoning upon for their profits. Then, again, there was another large range of old works, about 60 fms. south of the present range, which, so far as one could judge from the surface, would offer just as good chances in the future as the lode they were working. In fact, taken together, they would form the basis of one of the largest tin mining operations in Great Britain. Apart from his business, it was a real pleasure to him to see those large lodes. He did not know where he could point to two lodes in Great Britain which could be dealt with more effectually, and, no doubt, by-and-bye, they would be possessors of very important business. He believed his testimony as to these lodes varied very little from that of other engineers. There was one thing they would have to bear in mind—and that, he had no doubt, they would do—and that was that they had to deal with very peculiar ground. The old mine was lost through a mistaken method in taking away the stuff. The timbering was badly affected; there was water—not a great deal of water—but the mine was never drained properly, and the ground was never kept open as it should have been, and that was the danger they would have to avoid. He believed, from what the Chairman, had said, he had that quite in view, and he would take care to prevent the recurrence of that calamity.

The CHAIRMAN said that perhaps Capt. Richards would like to make some remarks, as he had been down at the mine quite recently.

Capt. RICHARDS said it was about 29 years ago that he inspected the Old Yeoland Consols. He had almost forgotten the larger portion of the report which he wrote at the time, but he believed it was favourable. He remembered he valued the lode in the bottom level at 100*l.* per fathom, and the next level at 80*l.* per fathom; that was a lode 8 ft. wide, with two cross-cuts, one at each level. He believed the size of the level had never then been known, as they had not cut through it anywhere. Even then it had not been cut through in either of the cross-cuts. The ground was there easy for working. If the lode should be found at a very great length (as he expected it would be), and as good and easy for working as it was then, the mine would be a most extraordinarily valuable one.

A SHAREHOLDER: At what depth was the lode worth 100*l.* —

Capt. RICHARDS said he thought about 46 fathoms under the deep adit.

The CHAIRMAN asked Captain Richards whether he could bear testimony to the truth of what had been stated about the turbine?

Captain RICHARDS said that he certainly could. After the failure of the large turbine which had been erected there the directors were inclined to erect a water-wheel; but he saw it would cost a great deal of money, and was satisfied that the "Little Giant" turbine would answer better than a water-wheel, and he exercised his influence to get the directors to alter their decision, and to give up the water-wheel and erect the turbine. He offered to go and erect it himself, being sure it would answer well, particularly if well erected. He was determined it should be erected in the best possible way, and it was a pleasure to him that he was engaged to do it. It had been erected, he believed, as well as it could be, and it had answered admirably well. Since then two parcels of tin had been sold, and he believed very good returns could now be made and continued for almost any length of time. The lodes were very large, and would require very great time to work even at only a moderate depth. It would be many many years before the mine was even half worked out. (Cheers.)

The resolution for the adoption of the report and accounts was then put and carried.

Mr. DANGERFIELD moved that Mr. H. H. Swinny be re-elected a director. —Mr. J. E. HUTTER seconded the motion, which was carried.

Mr. ATTFIELD moved that Mr. F. J. Lightfoot be re-elected a director, which was seconded and carried.

Mr. E. C. Foreman, F.C.A., was re-elected auditor on the motion of Mr. KAY, seconded by Mr. ROWE.

On the motion of Mr. FOREMAN, seconded by Mr. J. E. HUTTER, a cordial vote of thanks was passed to the Chairman and directors.

The CHAIRMAN acknowledged the compliment. He believed the mine was now nearly brought into good working order, and if the shareholders would have a little patience he felt convinced that they would be fully remunerated.

#### GLENROCK COMPANY.

The ordinary general meeting of shareholders was held at the City Terminus Hotel, Cannon-street, on Thursday.

Colonel HOWARD in the chair.

Mr. SAMUEL JENNINGS (the secretary) read the notice convening the meeting. The report and accounts were taken as read.

The CHAIRMAN said: This, gentlemen, is the first time that we have met you since the reconstruction of the company, and we have in the report which has been submitted to you given very fully the general position of our affairs. The reports we have received since we sent that to you continue to be very favourable. Mr. Minchin writes as follows on the 6th of April:—"China rhea is far quicker in growth than the wild rhea, we shall have 240 acres under rhea this monsoon. Rhea will have a fair trial now, and is certain to be a valuable field." On the 10th of May with regard to coffee he says:—"The rains have been sufficient to bring out most of the blossoms. On fields with a west and south facing the crop has suffered; but generally there is a fair prospect, and on portions of the Glenrock Glenrosa, and Trevelyan estates there is a large crop.—Tea: If tea is cultivated by the Glenrock Company to any considerable extent, the land adjoining the Glenrosa field will be most suitable, and will be convenient to the reduction works and fibre mills, where the tea machinery for preparation can be worked by the existing water-power.—Indigenous fibre: The wild rhea yields a very valuable fibre; but the stems must be regularly cut at the right age, and as a quantity of this can be obtained at a moderate distance from the mill, these indigenous plants are pollarded and layered to be regularly cut. Seed has also been collected to sow on the rocky and precipitous lands where China rhea cannot be cultivated.—Rhea: As to the success and growth of rhea, although it is not expected that any stems can be grown during the year in which the plants are put into the field sufficiently matured for treatment, yet from plants put into the field in June and July, 1884, several thousands of stems have been cut during the past month averaging in weight 3 ozs., instead of 1½ ozs., the average weight in Algiers. The stems can now be cut as they ripen and begin to brown, every 10 days or a fortnight. The growth in height averages about 1 in. per day, and it seems that it will soon be necessary to thin out the plants to 3 ft. by 3 ft., as the roots spread and fill up all the soil rapidly. In conclusion, I would remark with reference to these estates, that while the gold work was at its height the cultivation of the coffee estates was a very secondary consideration. It was not till the end of 1883 that any serious attention was paid to it. The estates are now in comparatively good working order; but owing to the numerous vacancies in the coffee now planted with cinchona, the actual number of coffee trees per acre under cultivation is very small. While the total area of old coffee, 450 acres, is very little to bear the cost of company

management, real profit can only be made by opening out land. Coffee and Ledger together on the north facing of the valley. Rhea on the other side below the water channels. Tea above this water supply. No finer land for these staples is now available in the country. There is no doubt about the profit from well-opened new land, but the cost of up-keep and manuring old land during the present low prices must leave little margin. These estates formerly paid well, but they are now from 25 to 30 years old, and have gone through period of great neglect. That they should still look in such good heart proves that the climate and soil of the district are all that could be wished. A steady increase of the land under cultivation would soon alter the financial position of the company, and we have every facility here in land, labour, and buildings to open land cheaply and well." (Cheers.) From personal knowledge of these estates it is very satisfactory to me to find them doing so well as they are now. When I was there the old coffee seemed to have been so dreadfully neglected for years that I had very great doubts as to whether anything could ever be made of it; but our crop this year, although smaller than we hoped, has been better than for some years past, and the crop in this coming year promises to be, as you hear, an exceedingly good one. The directors have been giving their principal attention to rhea and the fibre plants, and they have not been extending the coffee to any great extent, but probably as matters go on, if coffee improves somewhat in price, it may answer the purpose of the company to plant some of our extensive forest land with young coffee, so as to get some new and strong bearing coffee fields. The rhea, as you see here in the reports, appears to thrive remarkably well, and there seems to be no doubt that we shall be able to make a really extensive business of that. (Hear, hear.) As you know the board entered into negotiations to procure the concession of the Bhowani Valley, and during the past year, as the report shows, a great deal has been done there. More would have been done but for the extreme difficulties we experienced in getting the water to the mills. They had to bring it a long distance, and the soil was far more porous than was expected, and the loss on the road was so great that the water power was not sufficient, and before they could get the defect thoroughly cured the bad season set in, and they had to stop for two or three months. That is the only drawback to the Bhowani Valley, that it is a bad place for fever, during three months of the year, and it is then almost impossible to get work done; but the growth of the fibre is so great during the remaining nine months, and the natives are so keen to work that we do not expect much difficulty on that score. It so happens, however, that the fever season just caught us at an awkward time, as sometimes happens in opening out a new property, and, therefore, we are not in a position to lay before you such satisfactory results as our Mr. Hodgson had hoped to have given you. Still there is nothing to make us at all doubtful as to the success, and we are exceedingly well satisfied with what has been done in the Bhowani Valley, and without prospects there. Mr. Hodgson writes on the 24th of Feb.:—"I am working on the principle of erecting cheap and temporary buildings until the success of our experiments is assured." On the 23rd of March:—"A Native working for himself does twice the work he would do for hire, and once proved to him that he can make money he will stick to the work.—Moorva: Pleased to find no difficulty in getting green stems cut and delivered on the paths at the rate arranged. Think able to get a cheaper contract next time." On the 19th of April, after giving actual cost of a quantity of dry fibre (moorva), with details of work accomplished under great difficulties from the novelty of the operation, and with water-power not complete, he says:—"We may safely calculate that we can turn out our fibre much cheaper than the rate I have now given, and, therefore, that we have proved that the moorva can be worked at a good profit, and in time when our roads are extended our supply of material concentrated by planting, and everything in working order, that we may expect very good results." The result of first trial of machines has just arrived. The work will begin for the monsoon on the 15th June and continue till November on moorva, and during this period, and again in January to March fibre will be prepared to the whole capacity of the mills. He certainly expects 50 tons of moorva this season, worth 1500*l.* or 1700*l.* On the 18th of May Mr. Hodgson writes:—"I have great hopes of our rhea operations being a great financial success in the Bhowani Valley, and I shall use every effort to extend them to paying proportions before the end of the year. If we secure success there will undoubtedly be a great demand for plant, which we shall be in a position to supply, and a considerable profit would result from this alone." Mr. Collyer, who knows more about these various fibres than perhaps anyone in London, is here, and has kindly offered to give you an opinion upon these materials—rhea, wild rhea, and moorva; and through him, when we get a sufficient supply, we shall doubtless be able to find consumers who will take almost any quantity. He is an expert in that business, and he can tell you far better than I can the relative value, strength, the prices we are likely to get for these three main branches of our new industry, and so on. With regard to tea, that is quite an experiment. I do not feel at all sure myself how far that will succeed, because though I think we shall have very good flushes all through the monsoon; when we have got the monsoon there, I am very doubtful what we shall do in the other months of the year. It succeeds very well in Ceylon and in the Nilgherries; but they have much more intermittent rains than we have in the Wynad. However, it is well worth trying. We are trying it on a small scale, to make sure what we can do before we expend any amount of money in large planting. Now we come to the questions connected with the accounts, and I will just say a few words about them, as some explanations may be of interest to those here present. On the debit side of the balance-sheet you will find mentioned a debenture to Mr. Minchin. That is intended to secure 150*l.* per annum to Mr. Minchin, in consideration of his abandoning his own Indian interests to give his exclusive attention to our concerns. The debenture gives no power of foreclosure. That was part of the agreement under which Mr. Minchin, who has proved himself a most energetic and painstaking man, gave up his own interest, and went out on behalf of this company. As to the creditors in India, an item of 511*l.* 10*s.* 6*d.*; this is for salaries and labour for March, payable in April. On the credit side, the estates and rights connected therewith are put down at 100,000*l.* This is an estimated value. They originally cost a great deal more, but in writing off half the nominal capital this item was reduced by more than half. As to the plant and machinery this item has also been greatly reduced. At present all the plant and machinery for whatever purpose is included, such as steam-engines, turbines, &c., now used for fibre extraction. Under the head of mining, &c., I may explain that when mining in the Wynad was absolutely abandoned all expenditure on mining previous to the incorporation of this company was written off. Then as to the roads, surface, and surveying, this item, as well as the following "cultivation," represents the amount expended during the past year, added to the previous expenditure carried over into the present company's books. Cultivation has hitherto been dealt with as capital expenditure because the estates were in a most neglected state, and only by extraordinary expenditure could their condition be brought into their present satisfactory state. From this year capital and current expenditure will be kept separate. The actual expenditure during the 13 months of the accounts on cultivation has been about 11,000*l.*, the amount carried forward from the old company being about 5472*l.* The estimated expenditure of the current year at Glenrock is under 5000*l.*, and at Bhowani 3000*l.*, and the estimated realisations are for produce 1884-85 1400*l.*, and for coffee for 1885-86 4000*l.* We hoped to have had a definite estimate from Mr. Minchin of what the realisation for rhea and moorva were likely to be, but we have not received it yet. We have estimated as far as we can that we may expect about 50 tons of rhea, which at 40*l.* a ton would give us 2000*l.*, and of moorva we believe we may depend to the value of about 1750*l.*; so that if these figures at all come up to our expectation our expenditure for the years 1885 and 1886 would be 8700*l.*, and our income would be 9250*l.*, so that we are steadily not only making both ends meet, but getting into a satisfactory financial position. It is impossible, of course, to commence a new industry, as the directors told you when they asked your permission to do it, at a day's notice. The plants, as you hear, require nearly 12 months before they are

satisfactorily grown for cutting, but once the corner is turned it is quite evident that with the exception of fatal years for coffee, or anything of that sort, which might diminish our incomes, the probabilities are that we shall be able to show you a very different balance-sheet to what has hitherto been done. Then we come to the final paragraph in the report—that is, the question of mining. When we met you on the last occasion many of our shareholders pressed upon us the importance of continuing mining. They were extremely adverse to our ceasing to mine, although some of the directors were then pretty well convinced that the case was hopeless. However, in obedience to the mandate we received we continued at Bithsal, which was the most likely spot, and gave very strong indications at times of turning out a useful reef, to prove it in depth until we were perfectly satisfied that we should be merely wasting money to go any further, especially as in the neighbouring property, on which there was by far the most distinct reef in that district, it was found that although gold-bearing, the quantity carried by the reef was really not sufficient to pay, and that being the case we came to the conclusion that Nature was against us in the Wynaad, and that although there was gold in all directions it was so disseminated that it was impossible to make a profit by its extraction. All our efforts, and the efforts of neighbouring companies, had failed in finding a payable shoot, as it is called in mining. I suppose there is no other part of the world in which there is so much dissemination of gold, and no appearance in any part of the shoot or gold lead from which all this other gold has come. In the Mysore, in Australia, in Colorado, and in the Argentine Republic you find these shoots in various directions, and the company that gets hold of one of them is sure to make a good thing of it; but in the Wynaad not one single company has been able to show that they have been successful in that respect. Well, we gave up mining, but as so many of our shareholders were anxious that the Glenrock Company should not cease altogether to be a mining company, we looked round to see whether there was any place where we could employ a portion of our capital on a likely mining adventure. We considered various propositions in various parts of India, but there were none of them good enough; but in the beginning of this year, in consequence of the continued reports that we had of the value of the Carolina Mine, near St. Luis in the Argentine Republic, Mr. Hopwood and I went out to examine and satisfy ourselves as to really what was the state of affairs. We were there nearly a month; we spent a considerable time underground, and a great deal more time in going about on the surface, and we are satisfied that the reports which have been issued from time to time about the West Argentine Mine are not in the slightest degree overdrawn, and that there are few places in the world where there is so good a prospect of a speedy return for money spent as there is in that mine. It is well situated, and very easy to work. There are drawbacks; but taking all the drawbacks into consideration, we are satisfied that there is a very fine prospect for any company putting money into it. The company which has that property is already formed. It is a public company, just as we are ourselves, and the question that we, as directors, had under consideration, was—on what terms was that company formed? Was it formed as most of these gold mining companies had been, unfortunately, with heavy payments to promoters and intermediate men? or was it formed with a fair prospect of everybody connected with it benefiting by their connection with it? The accounts of that company show that the original owners of this mine got no profit on the sale of the mine to the company, the whole of the profit they would get being dependent on the success of the mining operations, and that, therefore, this company if they took an interest in that company would stand on as good terms, and possibly—if we got a mandate from our shareholders to do our best in making arrangements with that company—on even better terms than the original owners of the mine. Of course that was a very important matter before we ventured to suggest to you the advantages of joining that company. The reports were so exceedingly favourable that we thought it advisable, in the interests of our shareholders, just to have a hold upon the company to a certain extent. Therefore we took a debenture of 1000*l* as a first charge as an investment of 1000*l* of our capital, which we have the power to do under the Articles of Association to give us a lien upon the company, and to secure us certain advantages. It will fall through on the 1st of July. If between now and 1st July we are authorised to make the arrangements we shall have certain advantages given us. I may just say that the visit of Mr. Hopwood and myself did not cost the company a penny. (Cheers.) We are large shareholders in the Glenrock, and we are most anxious to consult all our shareholders, because we have three classes of shareholders. We have those who originally went in for mining, and who are anxious to see large dividends obtained out of mining, and I think as far as the amount we could afford to put in the West Argentine Mine—which would not be large; a sum of 5000*l*. or 6000*l*.—the probability is that we may get 30 or 50 per cent. profit on the amount. Those are the sort of things that are the legitimate results of a successful mining speculation, and it is very different to the small but safe dividend which cultivation would be likely to pay. As I say we have a large number of shareholders who are extremely anxious that we should continue mining, and we say to them—"We have looked all the country over and we would much rather put our own money into the West Argentine property than into any of the Mysore mines, although I believe the Mysore mines to be thoroughly good, and with a big capital may in the long run, perhaps, prove as remunerative as the West Argentine; but with a moderate capital you can make more in West Argentine with 6000*l*. (say) than you would with 20,000*l*. in the Mysore field; I mean approximately, and within a short period of time. Then we have a number of shareholders who have come in since the reconstruction of the company simply for speculation, and they are steady careful men who do not care about mining speculations. To them I would say that we so fully feel the importance of not starting the cultivation that the sum we propose to put into West Argentine, if it meets with your approval—5000*l*. or 6000*l*.—would leave us with a year's upkeep in hand in case of any possible mishap; so that we conciliate all classes of shareholders—those who like a little mining venture, with, as we believe, greater chances of success than often attends a thing of that sort, and those who have come in lately and wish to see the cultivation of fibre carried on. If we continue next year to do as well as we have this the cultivation ought to leave us something to the good. (Cheers.) I will ask Mr. Collyer to give us some information on the value of these three fibres, and then I shall be happy to answer any questions that any gentleman likes to ask. Mr. Minching, who, as you all know, is an expert who has had great experience in various parts of the world was out with us in the Argentine Republic, and he is present, and will be happy to answer any definite enquiries you like to make about the West Argentine mines; so that I hope we shall be able to lay before you the whole of the information you require. I beg to move the adoption of the report and accounts.—Mr. T. G. GILLESPIE seconded the motion.

Mr. GIBSON asked what had become of the timber which was said to be such value? He also expressed the hope that great care would be taken in entering into arrangements for the acquisition of any other property.

The CHAIRMAN replied that the timber was still there, but that with the cessation of mining operations in the Wynaad it had lost much of its value. It would not pay to bring the timber to this country.

Mr. COLLYER referred to the demand for the various classes of fibre which the company is cultivating, and said there were plenty of people willing to take the whole of the production of the company at prices which would leave the company a good profit. He also mentioned that the values stated in the report were well under the mark.

Mr. BLADON asked whether the debenture given to Mr. Minchin was to be taken to mean an annuity or a perpetual payment of 150*l*. a year?

The CHAIRMAN said it was a debenture without power of foreclosure. It could be paid off at par at any moment.

The CHAIRMAN, in reply to a further question, said the 1000*l*. advanced to the West Argentine Company was a first charge on the property, and it could be claimed at six months' notice.

Mr. BLADON expressed his belief that the capital which it was

proposed to put into the West Argentine property, could have been profitably employed in the purchase of a property, or an interest in a property, in the Mysore.

After a few remarks from Mr. HORNCASTLE and Mr. VEAES. Mr. WILLIAM ABBOTT said he thought the company should only subscribe to the West Argentine Company if they would have the opportunity of sharing fully in the benefit of the profits which their subscriptions might bring about. If they had that right, he thought the investment might very judiciously be made. He hoped that they would confine their experiments in India within a very narrow limit, and not place much reliance upon experts. (Hear, hear.)

The CHAIRMAN, in reply to the points raised, said the company had now a little over 17,000*l*. in hand. As to the West Argentine property, the suggestion was to advance from 5000*l*. to 6000*l*. on mortgage at 10 per cent., with the option of converting the debentures into shares. The directors would, of course, only advance the money if they saw that the capital to be furnished in other quarters would meet all the requirements of the property. Glenrock interests would be well cared for as Mr. Hopwood was the Chairman of the West Argentine Gold Company. The title to the West Argentine property was perfectly secure and free from prior claims. About 14,000*l*. had been expended upon it, and it was expected that from 15,000*l*. to 20,000*l*. more would be amply sufficient to complete the work of development.

The report and accounts were unanimously adopted.

The CHAIRMAN then moved that the directors should be authorised to invest an additional sum, not exceeding 5000*l*., making 6000*l*. in all, upon debenture to the West Argentine Company, convertible into shares.—Mr. HORNCASTLE seconded the motion which was unanimously carried.

Mr. PINCHING said that his report on the West Argentine property was in their hands, he could only add that in his opinion they had a chance to obtain an interest in a very good thing.

Mr. HOPWOOD wished to add that when they visited the mines they not only had Mr. Pinching's advice but also the opinion of a man of 18 years experience of gold mining in Australia—Capt. Blamey who had also visited the Mysore fields, and in his opinion however good Mysore might be he told him he would rather have the West Argentine Mine than the whole Balaghat district.

Mr. GILLESPIE moved the re-election of the retiring directors, Col. Howard and Mr. Hopwood.—Sir JOHN HUMPHREYS seconded the motion, and it was carried.

Mr. John Smith was re-appointed auditor.

The meeting closed with a vote of thanks to the Chairman and directors.

#### EBBW VALE STEEL, IRON, AND COAL COMPANY (LIMITED).

The 18th ordinary general meeting of shareholders of this company was held at Manchester on Wednesday.

Mr. EDWARD COWARD (the Chairman), presiding.

The CHAIRMAN, in moving the adoption of the report and balance-sheet, stated that though the result of the working of the last year had been a continuance of the disappointment they had experienced for so long, yet it was an improvement on the preceding one.

Mr. SHELMEIDINE seconded the adoption of the report and balance-sheet, which was agreed to.

Mr. Benjamin Gibbons and Mr. Higson were re-elected directors, and Messrs. Cooper Brothers, Manchester, were re-elected auditors.

A SHAREHOLDER complained that the Ebbw Vale Company was worked more in the interests of the mortgages and debenture-holders than of the shareholders, and contended that it was not necessary to clear off the debentures so rapidly as they were doing. It was time the shareholders had a turn. He had been a shareholder for many years and had only had a 5*s*. dividend.

ANOTHER SHAREHOLDER: I have been a shareholder 12 years and have only had 7*l*. I gave 30*l*. for my shares.

Mr. STEWART (Manchester), one of the trustees, reminded the shareholders that they had decided to grant debentures for a term of years, instead of issuing preference shares, at a given rate of interest. Their property was valued at 1,700,000*l*., and upon that property existed a mortgage, in the names of three trustees, to the extent of 500,000*l*. That was certainly not too large, as the rents and royalties in themselves were nearly double what was needed to pay the interest. There could not be a better security in Manchester than preference shares issued to the amount, and, if the shareholders put their hands in their pockets to do it, they would have the 60,000*l*. in rents and royalties available to pay 4 per cent. dividend. This debenture scheme had now got down to 520,000*l*.; it was originally 750,000*l*., and, from a calculation he had made that morning, he had discovered that if they continued to pay 50,000*l*. per year the whole would be paid off in nine years.

The proceedings then terminated.

#### THE AMERICAN METAL MARKET.

Messrs. MATHEWS and WEBB, ore and bullion brokers, Denver, Colorado, write under date June 6:—"The general trade of the country sends in reports from all sides of over-production, or, more properly expressed, of under-consumption, and commercial papers and circulars fairly bristle with statements of surplus, cuts, and dullness. The most important feature is the great iron strike and lock-out, by which nearly 100,000 men will be out of work. Nothing could be more ill-advised on the part of the workmen, more advantageous in many cases to the mills and to consumers, or more indicative of the depression in business of which iron is the corner stone. The reserve surplus in the associated New York banks has for the first time on record passed the 60, and stands now at \$60,768,925. The result of this actual glut of money is a reduction of interest to 1 and 1½ per cent. on call, which is practically next to nothing. The railroad troubles continue and freights are cut right and left; receivers are talked of in several roads, and the Stock Exchange prices are pretty generally lower. The various clearing houses show a decline of over 25 per cent. in the volume of business from that of last year. Imports at New York since January 1st are \$31,000,000 less than during the same period in 1884, and exports \$30,000,000 greater, which is the most favourable item of news on the entire list."

COPPER is being "bulled" on all sides at the rate of 13 to the dozen. Circulars teem with advice to wary speculators to jump in and buy. Newspapers predict a historical and meteoric boom before the snow flies again, and mineowners are looking forward to a glorious autumn, and hum "How great will the harvest be!" and yet, aside from very favourable statistics, the boom is more a boomlet or a boomerang than aught else. Lake has been in very light demand, at 1½*c*., with other brands barely steady at 10½ to 11½*c*.. The larger consumers are all taking in their supplies on their recent contract with the Lake companies. At London, Chili bars have wavered around 45*l*. 10*s*., dropping on the 3rd to 45*l*., and closing on the 6th at 45*l*. 7*s*. 6*d*., with best selected at 49*l*. 5*s*. The export figures, January 1st to May 1st, show an amount of over 13,000 tons of fine copper, which will equal, if continued, 30,000 tons, and will still leave 40,000 tons for use here. The United States production of 1884 was generally allowed to be very close to 70,000 tons, and the consumption about 35,000, which is still a trifle below the supplies.

LEAD has been remarkably steady at all points, but under very light offerings, and under limited demands from manufacturers. At Chicago the price has been remarkably firm at 34*c*., while at St. Louis it has drifted off to \$3.45 for corroding, and \$3.42½ and \$3.40 for the ordinary leads. At New York the sales have reached 500 tons, being about half corroding at \$3.65, and the balance common at \$3.62½ and \$3.60. The severe open competition on pipe continues, and white lead is a trifle better, while the shot prices under combination are the most satisfactory branch of the trade. The spring trade is generally admitted to have been the lightest that there has been for several years, and manufacturers look for little improvement until late summer.

The gas coal required by the Derby Town Council will be supplied as follows:—The Derbyshire Silkstone Colliery Company, 5000 tons; Mr. J. E. Perry, Wolverhampton, 2500 tons; and the Pelsall Coal and Iron Company, 5000 tons.

#### WATSON BROTHERS MINING CIRCULAR.

WATSON BROTHERS,  
MINEOWNERS, STOCK AND SHARE DEALERS, &c.  
1, ST MICHAEL'S ALLEY, CORNHILL, LONDON.

We do not issue a private circular. What we have to say we say openly and publicly, and our correspondent "Inquirer" is only one of many who, now that mines are becoming prominent once more, wish to ask for our advice and recommendations. We take this opportunity, therefore, of repeating word for word what we have kept before our readers for the last 40 years in the columns of the *Mining Journal*—"Being daily asked our opinion of particular mines, as well as to recommend mines to invest or speculate in, we give our advice and recommend mines to the best of our judgment and ability founded on the best practical advice we can obtain from the mining district, but we will not be held responsible, nor subject to blame if results do not always equal the expectations held out in a property so fluctuating as mining." We also at the same time, and for the same period laid down certain rules with regard to speculation, which should still be regarded.—1. Never speculate in mines with money that you cannot afford to lose.—2. Never put all your eggs in one basket, but divide your risk in half-a-dozen progressive mines, so that success in one may ensure a profit in the aggregate. If all succeed so much the better. We may add, that after the very long depression in mines, and the almost nominal value of many, half-a-dozen may be chosen with more than the ordinary chances of success. And we always embark ourselves in mines that we recommend to others. If they lose, we lose.

Any shareholder can have an order to inspect East Blue Hills by applying to the secretary, Mr. C. B. Parry, Gracechurch-street Buildings. It will be necessary now, as in other mines, to fix a regular inspecting day. Daily inspection greatly interferes with the daily work underground.

We never held a share in Wheal Uny ourselves, but when through the relinquishment of shares and the failure of shareholders the late company had to wind-up, just when the mine should have been prosecuted vigorously, we agreed to assist in the formation of a new company on three conditions only.—1. That no premium or promotion money should be charged.—2. That every share should in the first instance be offered at cost price to the old shareholders.—3. That the purchasers of the property at the public auction, and those who have joined the syndicate, should only have such shares as the old shareholders did not subscribe for. We could scarcely conceive anything fairer. But we received a letter from a Mr. Henry Viner, bringing grave charges against the late management in Cornwall, and asking us if we had seen certain letters making specific charges against it. We replied that we had not, and had never even heard of them, and until we knew what they were and got an explanation should have nothing to do with the concern. The reply we got from Cornwall, among other things we could not well publish, was that Mr. Viner had been a holder of 40 shares only, and that he had relinquished them before the mine was sold. Since he wrote us Mr. Viner has issued a long circular full of letters commenting upon the late Cornish management, and as we are informed an action for libel has been commenced against him, we abstain from further comment.

Capt. Nance has this week made a special report of East Blue Hills, and forwarded it to the *Mining Journal*. He says the lode west is fully 18 ft. wide, and he values it for its whole width at 80*l*. per fathom. East for 12 ft. 55*l*. per fathom. This course of tin has now been opened upon thus rich 14 fathoms in length at the 20. The shaft is sinking in the northern hanging part of the lode only, but for its full width Captain Nance values it at 125*l*. per fathom, and the prospects of continuance in length and depth is very good indeed, being near a cross-course similar to the best courses of tin in the county. He also writes that the mine at the present moment is in a position to supply 48 heads of stamps. Of course all our energies are at present directed to getting the steam pumping engine to work, and so long as the mine continues to open as at present, we can at any convenient time add fresh stamps. At present we have 24 heads, 12 worked by steam, and 12 by water, and water of late has been very slack, so that our returns are from 12 heads, and 5 tons a month, at 50*l*. per ton, pays the cost of the mine, and the engine is capable of taking the mine down 100 fms.

Some people make a great show of erecting large and expensive machinery, and then when it is ready there is a lack of material to dress. We have gone on the other tack at East Blue Hills; our agent's chief attention has been to open out and develop economically and well a rich mine. Machinery can always be got. No doubt shares have been heavily "beared" in the market, and sinister reports which can no longer be made as to the state of the mine, are now transferred to the want of machinery.

When the required extra machinery has been obtained, the accumulated tinstuff in the mine may pay for it. The agent writes the committee this week:—"As to stamping, the mine has in the course of a few weeks literally outgrown all our appliances, for which we must be thankful."

At D'Eresby the lode in the hanging is still holding down, and worth 2 tons of lead ore per fathom, and a more kindly matrix the agent says cannot be seen.

At New Caradon the agent considers he is nearing the lode.

At New West Caradon, in which we are also among the largest shareholders, the lode has improved to 2 tons of ore per fathom.

We have this morning (Friday) received notice of the sale of tin at East Blue Hills for the four weeks, and it realised 294*l*. 9*s*. 1*d*. The best parcel of 5 tons brought 52*l*. 2*s*. 6*d*. per ton. This was the produce of the 12 steam stamps referred to, and pays the current costs of the mine. The sale last month realised 265*l*. 2*s*. 8*d*.

THE KRUPP WORKS.—The latest published report of the establishment of Messrs. Krupp, Essen, shows that the works continue growing, not merely in extent, but also as regards the number of persons who find employment there. In 1860, only 1764 men were engaged at the works; this number had risen in 1870 to 7084; now it is over 20,000. If the women and children are taken into account whose livelihood depends upon the establishment, we find a working-class population of not fewer than 65,381 persons, of whom nearly 29,000 live in the houses owned by the works. The various departments of Krupp's undertaking number eight, and comprise the works at Essen, three collieries at Essen and Bochum, 547 iron ore mines in Germany, mines near Bilbao, Spain, the smelting furnaces, a range for testing ordnance at Meppen, besides other places. There are 11 smelting furnaces, 1542 puddling and re-heating furnaces, 439 steam boilers, and 450 steam-engines of 185,000 horse-power. At Essen alone railway tracks of a total length of 37 miles are laid down, with a rolling stock of 88 locomotives, 893 wagons, 191 trolleys, besides 60 horses. There are 40 miles of telegraph wires, 35 telegraph stations, and 53 Morse apparatus.—*Iron*.

The severe competition of the district is necessitating the Staffordshire and Worcestershire iron and steel makers to seek fresh means of advantage. Messrs. J. Knight and Co., who for a great many years have carried on iron and steel manufacture at Cookley, Worcestershire, have just determined to move the site of their works to Brierley Hill, the centre of the well-known Ten Yard Thick Coal district of the Earl of Dudley. Coal and pigs will thus be obtained at less cost.

## Mining Correspondence.

## BRITISH MINES.

**BEDFORD UNITED.**—H. Trease, June 23: We have intersected the cross-course in the 75 west, we shall now drive in an oblique direction, with the view of intersecting the lode under the cross-course. The lode in the 62 west is improved, producing 1 ton of good ore per fathom, worth 5s. per fm. In the 62 east the lode is 3 ft. wide, and worth 5s. per fm. The several stopes in the back of the 62 east are worth on an average 4s. 4d. per fm. The tribute pitches are just as they were reported last week.

**BURNHOPE.**—S. Reynolds, June 23: The No. 1 stope in low level is still yielding good ore per fathom, and set at 50s. per fathom. The men we put to rise from No. 2 stope in low level have now completed the rise to the top level, and thus carried good air through the mine between the engine-shaft and the air-shaft, which is of great importance for the future working of the mine. In putting up this rise in the sill above the Pattinson, a nice vein has been opened out worth 1½ ton per fathom, and easy to work, but will have to stand until we get the ladder way and hopper finished in the rise. The top level forehead is still yielding fine bone worth from 1½ to 2 tons per fm., and set at 40s. per fathom, the men to put the bone to bank. We started a set of men in the low level to open out a branch of an east and west vein which is very promising, carrying a rib of lead ore 3 in. wide in some places, and likely soon to improve as we get away from the influence of the north and south vein, which is of great strength at the intersection, and this is likely to open out a new field of operations. The last of the parcel of ore, 65 bings, was put on rail last week. The dressing machinery is working well, but we are not able to work full time owing to the dry weather, but we are taking steps to obtain an increased supply of water for dressing purposes.

**CARN CAMBORNE.**—W. O. Vivian, June 25: We are pushing on the 105 west towards the cross-course with as much expedition as we can, but I regret to say the rock is very hard, and consequently our progress not so rapid as we could wish. On reaching the cross-course we shall, judging from the workings above, have a much softer formation of rock, enabling us to explore much more quickly into the undeveloped parts of the mine, more particularly in the direction of the Dolcoath lode.

**CREIGLOCH.**—H. Hotchkiss, June 23: The lode in the rise east of shaft at 130 increases in size as we ascend here, and is now 4½ ft. wide, and appears more kindly in its appearance. The lode in the forehead of the 130 west is fully 4½ ft. wide, and in character is much the same as for some time past.

**DEVON GREAT CONSOLS.**—Isaac Richards, June 25: Wheel Maria: In the 12, east of the eastern shaft, on the Capel Tor lode, the lode is from 2 to 3 ft. wide, composed of capel and quartz, with peach, and small quantities of copper and munda ore. In the 12, west of the eastern shaft, on the Capel Tor lode, the lode is 3 ft. wide, of a promising character, and is also yielding a little copper and munda ore. In the 12, east of the shaft, the lode is 4 ft. wide, composed of strong capel and quartz, with peach, and a little copper ore, some good quality arsenical, and also a little tin ore of good quality, one specimen of which yields on assay upwards of 2 cwt. of black tin to the ton of ore. In the 12, east of the shaft, the lode is 2 ft. wide, composed principally of capel and quartz. In the 112, east of the engine-shaft, the lode is 4 ft. wide, and continues to yield saving work of copper and arsenical ores. In Trethewey's in the back of the 112, west of the engine-shaft, the lode is 4 ft. wide, also yielding saving work of copper and arsenical ores. In the 44, east of the western shaft, the lode is 1½ ft. wide, yielding a little copper and munda ore.

**DERESBY.**—John Roberts, June 24: Since I wrote you last Thursday we have sunk in the dump on the hanging from 3 to 4 ft., the result of which is very satisfactory, as the lead is still holding down, and rather better now than it was at that time. The lode is worth fully 2 tons of lead per fathom, and a more kindly matrix one can see in any lode. The lead is lengthening both north and south under a layer of poorer ground, which we have to remove as well as the shale, and the rock is being put on, and good progress is being getting rather quick, which will necessitate our hurrying down the new shaft to drain it off. The end driving south from the new shaft is not looking so well as it was, but the stope behind it is much the same value, and there is a good lode in the bottom for the next stope.

**DRAKEWALLS.**—Thomas Gregory, June 25: There is no change in the lode in the engine-shaft, which maintains its full value of from 10s. to 12s. per fathom. Water issues freely from the north side, and there is a probability of the north lode not being far off, judging from the underlie at the 50. There is no important change in the lode in the 50, east of cross-cut, which is worth 5s. per fathom. The lode in the 50, east of cross-cut, is worth 5s. per fathom. The ground in the 50 west has considerably improved, and the lode shows strong indications of an improvement also.

**DUCHY PERU.**—R. and J. Nancarrow, June 23: The lode in the 80 west continues to improve in productiveness, where good progress is being made. Here we are encouraged (as we extend) to believe we shall soon get into more profitable ground, as there was nothing seen like it in the level above, and from present appearances it is likely to be the future of the mine in depth. The 70 fm. level still produces rich stones of blende, and in cross-cutting through the lode we have had some splendid work for blende, which will soon be available for stoping at a good profit. The tribute department is producing blende of a superior quality at the 60 and 70 fm. levels to any seen at the shallower levels, but these points are rather impeded for progress in consequence of the lightness of the air to the gas issuing out of the lode at this season of the year especially. All other work is in satisfactory progression, and all the machinery in good order. Our dressing operations are also being carried on with regularity.

**EAST BLUE HILLS.**—S. Bennett, W. K. Mitchell, June 23: The north part of the lode in the shaft sinking below the 20 is worth from 5s. to 9s. per fathom. In the 20 east end, which is on the south wall of the lode, is worth 30s. per fm., and in the west end at the same level it is worth 25s. per fathom. The length of capital tin ground thus far opened out at this level is 14 fms. In the 10 west end the lode seems to be improving as the end gets farther from the cross-course, and is now producing good stones of tin. In the 10 east end the lode is of a most promising kind, is 3 ft. wide, and worth 5s. per fathom. The walls of the engine-house are up, and the roof is being put on, and good progress is being made with all the necessary work in connection with the new shaft.

**EAST BLUE HILLS.**—William Rance, Special Report: The lode in the 20 fathom level, west of engine-shaft, is very large, and increasing in size going west. From the appearance of the hanging-wall it is now 18 ft. wide in the present end, and assayed 100 lbs. tin to the ton, and worth fully 80s. per fm.; in fact, if the assay is the average for the whole width it is worth over 110s. per fathom. The same level east of shaft is 12 ft. wide, and worth 55s. per fm. This course of tin is now opened on for 13 fathoms in length at this level and 70 fms. in length in the adit, and improving and extending in both levels. The engine-shaft is down 8 ft. below the 20 fm. level, and sinking in the hanging part of the lode, which above this end was the poorest part; but a very favourable change has taken place, the hard quartz giving place to peach and pryan, from which is the most genial matrix for tin, and, in fact, assays high wherever found throughout the mine. The lode for its full width and length of shaft is worth fully 125s. per fathom, and the prospects of continuance in length and depth is very good indeed, being situated near a cross-course similar to the best courses of tin in the county. In the 10 east the main part of lode appears to be standing south, and a cross-course should be driven for interest in it, as the part driven on does not correspond with the lode in the adit and bottom level being only a branch of it. A wine sinking in the bottom of the 10 fathom level a little in advance of the 20 east is going down in the lode which is increasing in size and value corresponding to the improvement which occurred in sinking the shaft, this shows well for its continuance eastward. The adit level has been driven on the course of the lode 70 fathoms, which is worth on an average 5s. per fathom at the present price of tin, and can be stoped for 2s. per fathom, leaving a very good profit. The last 20 or 30 fathoms driven in is whole ground to surface, the incidents having worked the lode from surface to a depth of about 40 fms., and for a great length, and there is consequently a very extensive and valuable piece of ground opened here. The lode in the present end has increased in size from 2 to 4 ft., and increasing very fast in size going east, and improved in value to 12s. per fathom. This is opening in a similar manner to the course of tin in the bottom of the mine when first discovered, and to which I attach great importance as there is 60 fathoms of backs here, and the 10 fathom level is only 23 fathoms behind it, and there is every appearance of another splendid deposit of tin here. The mine is now sufficiently opened to warrant the increase in stamping power I recommended, which should be executed immediately as the mine would then make a very good profit.

**EAST WHEEL LOVELL.**—Thomas Quentrell, June 24: We are driving and opening on tinwork lode further east than our previous workings. We find the lode to be quite 4 ft. wide, containing a little tin, and of a very promising character. We shall explore this lode in the eastern ground as rapidly as possible, and if we meet with the outcrop of another bunch of tin it will be very important. There is no alteration on the south lode to notice.

**GAWTON.**—Moses B. Widen, June 23: Setting Report: The 117 to drive east by two men, at 11s. per fathom; the part of the lode carried is 4½ ft. wide, nearly solid arsenical adit, with good stones of copper ore, and in cross-cutting laying open some profitable stoping ground. At the 135 we are cross-cutting south to cut the part of the lode that the 95 and 117 fm. levels are being driven on. Set to four men at 8s. 10s. per fathom. The 95 to drive east, by two men, at 2s. per fathom; lode 4 ft. wide, yielding 10 tons of arsenical munda ore per fm. Stope in the back of the 117 east, by four men, at 6s. per fathom. Stope in the back of 105 east, by two men, at 4s. per fathom. Stope in bottom of 95 east, by four men, at 5s. per fathom. Stope in bottom of the 70 west, by four men, at 4s. 10s. per fathom. Stope in back of the 70 east, by four men, at 4s. per fathom. Rise in back of 95 east, by two men, at 10s. per fathom. Our stopes will each yield on an average 9 tons of arsenical munda ore per fathom. During the last eight weeks we have a profit of about 300s. from our returns of arsenical alone, and the mine has not been looking better for some time than at present.

**GOODEVERE.**—R. Knott, June 24: The lode in the deep adit east continues of a promising character, and, judging from present appearances we believe it will soon be found productive of tin in good quantities. The distance driven during the past month is 3 fms., and the end is rest at 4s. 10s. per fm., and 2 fms.

**GREEN HURTH.**—James Polgaue, June 18: The bottom level north is worth 3 tons per fathom. The 44 level is worth 1 ton per fathom. The stopes in back of 44 level north are worth 12 tons per fathom. The 30 and north is not without ore, but at the present point not to value. We are cutting ground for a wine pit in the 30 level, preparatory to sinking a wine through to the 44 level. We shall sink in a vein worth 3 tons per fathom. The middle level north the vein is worth 1 ton per fathom. No. 1 stope in back of middle level is worth 2 tons per fathom. No. 2 stope in the back of middle level is worth 1 ton per fm. The adit level east from new fontary is worth 1½ ton per fm. We have met with good stones of lead in the adit level east during the week. Dressing going on well.

**GREAT WEST SHEPHERDS.**—Captains E. and J. Nancarrow, June 23: The sinking of Brown's shaft having been completed to the 30, and which shaft divided and cased, with footway fixed and plat cut, we have commenced driving a cross-cut north to intersect the lode spoken of in our former reports, and as soon as practicable we shall cross-cut south, where we estimate that we have about 16 fms. to drive in order to intersect Mudge's lode, which was so

productive in the adjoining mine west. We have also commenced driving the 16 east on the north lode, and find the lode to be 3 ft. wide, and composed of flokan, spar, and munda, and it is altogether of a very kindly appearance. The men engaged in sinking the new engine-shaft having broken the windborn in blasting the rock at the bottom of the shaft a check was placed on our sinking for the time being, but we are glad to say this has been remedied by placing another there, and the men are making fair progress in sinking. All the other work is progressing favourably, although we find the surface water to be falling off very considerably, which necessitates our using means to economise the water for condensing purposes. This has been done, and is answering satisfactorily.

**HEALEYFIELD.**—John Trelease, June 19: I am pleased to inform you that our stopes are of equal value as reported last week. We will start to drive the north and again next week. By next Tuesday the 45 ton parcel of ore will be completed. We have finished the walls of the engine house, and will start to place on timbers for the roof on Monday next. The machinery throughout the mine is working very satisfactory, and good progress is being made with all outside work. We expect the engine, &c., to arrive at Newcastle every day.

**MARK VALLEY.**—William George, Francis Renals, June 25: We beg to hand you the following monthly report:—The shaftmen are getting on with their bargains as reported last month very satisfactorily; but we are obliged to suspend the driving both east and west at the 25 fathom level until the pit is completed, so as to enable us to haul away the stuff broken. We have also suspended the stope in the back, and are now sinking the wine from the 15 fathom level by nine men to communicate with that stope, where the water has increased during the month, so that it is now set at 16s. per fathom, while the lode is worth for the length 12s. The cross-cut is being continued south by four men, at 8s. per fathom. We have recently crossed some branches from which water is issuing very strongly, and as the character of the ground is altering we hope very soon to be able to report something more encouraging. Six men are employed in a stope in the back of this level, east of the cross-course, at 5s.; valued at 9s. per fathom. Six men are also employed in stoping west of the cross-course below this adit, where the part of the lode carries a worth 10s. per fathom. As referred to in a recent report, we sold a parcel of tin last week at 51s. 15s. per ton.

**MELLANEAR COPPER.**—John Gilbert, June 24: The men are making good progress in driving the 70 cross-cut, north of the main lode, east of Gundry's shaft, and the ground is getting wetter and mineralised throughout with veins of munda and blende. The lode in the 110, driving west of Gundry's shaft, is 5 ft. wide, yielding some good stones of copper and tin ores, and looking kindly. In the 110, east of shaft, the lode is 3 ft. wide, and worth for tin 8s. per fathom. In the 120, west of shaft, the lode is 4½ ft. wide, yielding some saving work for copper ore, and is worth for tin 8s. per fathom. In the 122, east of shaft, the lode is 4 ft. wide, yielding 1 ton of copper ore per fathom, and occasional stones of tin, and looking more promising. The part of the lode carrying in the 130, west of shaft is 4½ ft. wide, producing some good stones of copper ore, and is worth for tin 7s. per fathom. The part of the lode carrying in the 130, east of shaft, is 4 ft. wide, and yielding 2½ tons of copper ore per fathom, and some saving work for tin. The lode in Gundry's engine-shaft, sinking below the 130 fm. level, is 4 ft. wide, and yielding 1½ ton of copper ore per fathom. The stopes and pitches are looking just the same as when last reported.

**MID-DEVON COPPER.**—James Neill, June 20: A shaft, sunk by 12 men with rock drills and by hand labour in three days, 1 ft. 3 in.; total distance below the 90 fm. plat, 8 fms. 4 ft. 7 in. The water is still issuing from the bottom of the shaft in copious streams, which impedes our progress. The composition of the rock is unaltered. One of the surface rods broke across the eye this week, which delayed the sinking two days, and this day has been occupied in sending down about 100 fms. of rope, and in the sinking lift.—O shaft: Subsequent to the repair of the broken rod, the lode is now working, and the water is being drained in the A shaft at the stope in the back of the cross-cut north from the 50 fm. level east, and raised 1½ ton good quality copper ore. The strata at this point is very congenial, and the yield of ore improving, there being a good deposit in the highest part of the stope trending north and west.

**NEW CARADON.**—N. Richards, June 24: During the past month our operations have been confined principally to the cutting of the pit, and driving south towards No. 1 lode at the 60 fm. level, which we think we are now very near, and the ground is getting wetter and mineralised throughout with veins of munda and blende, and the lode is looking more promising. The cross-course here is very large, and much disordered, the lode is much the same, consequently the lodes are reached we do not expect to find them rich until we get away from their influence. But seeing that we had got a large lode in the adit level producing stones of ore for the whole distance driven, we fully expect as these levels are extended east and west on the course of the lode to meet with good shoots of copper ore.

**NEW LANGFORD.**—T. Gregory, June 24: The lode in the 10, west of engine shaft, is over 3 ft. wide, composed of munda, peach, and pryan, with a branch of blende, and is worth 3s. 6d. per fathom, and every coal; the lode continues of large size from 3 to 5 ft. wide, composed chiefly of soft quartz, and abundance of munda, with a branch, 3 in. wide, of carbonate of iron, pryan, and silvery munda, which produces low-class silver ore, equal to 8 and 12 cwt. per ton, which we are saving of. I am glad to say the branch is again increasing in size, and improving in quality a little. We are now going west into a silvery strata of ground. The 30 west has been driven near 6 fathoms, at 40s. per fathom; the lode here is over 3 ft. wide, composed of beautiful quartz, pryan, munda, and blende, spotted with lead—a very fine-looking lode, which as we go west ought to make a large deposit of mineral. We have an increase of water here from the north side, and I hope we are near a cross-course or caunter lode, in which case we might almost depend on a favourable change. The monthly costs and materials are kept as low as possible, and the men are all on long contracts at a cheap rate, so that we get the most work possible. I can see no cheaper or better place for a discovery than push these two ends. We are going through a good deal of low class ore that would pay well, with a fair price for it.

**NEW LANGFORD.**—Thomas Gregory, June 24: Monthly Report: I beg to inform you the 10, west of engine shaft, has been driven in the past month about 30 fms., at 40s. per fathom, including all and every coal; the lode continues of large size from 3 to 5 ft. wide, composed chiefly of soft quartz, and abundance of munda, with a branch, 3 in. wide, of carbonate of iron, pryan, and silvery munda, which produces low-class silver ore, equal to 8 and 12 cwt. per ton, which we are saving of. I am glad to say the branch is again increasing in size, and improving in quality a little. We are now going west into a silvery strata of ground. The 30 west has been driven near 6 fathoms, at 40s. per fathom; the lode here is over 3 ft. wide, composed of beautiful quartz, pryan, munda, and blende, spotted with lead—a very fine-looking lode, which as we go west ought to make a large deposit of mineral. We have an increase of water here from the north side, and I hope we are near a cross-course or caunter lode, in which case we might almost depend on a favourable change. The monthly costs and materials are kept as low as possible, and the men are all on long contracts at a cheap rate, so that we get the most work possible. I can see no cheaper or better place for a discovery than push these two ends. We are going through a good deal of low class ore that would pay well, with a fair price for it.

**NEW TERRAS.**—Richard Eade, June 25: The masons are making fair progress in the new buildings, and are the engineers in getting the engine, boiler, &c., from Halifax Mine; in fact, I may say the work throughout is being pushed ahead as fast as possible.

**NEW TRUMPET CONSOLS.**—T. Quentrell, June 25: The lode in the 40 west is worth 10s. per fathom for copper; it is letting out water freely, and has a very promising appearance. The stope in the back of this level is worth 8s. per fm. for copper. The lode in the 23, driving west, is worth 8s. per fm. for copper. The stope in back of this level is worth 8s. per fathom. The stope in the bottom of the 13 west is worth 6s. per fm. for copper.

**NEW WEST CARADON.**—S. Richards, June 24: We are opening west on the last lode intersected in the 38 cross-cut, which is 5 or 6 in. wide, producing a little copper ore, and is much the same in size and character as it was east, while in the influence of the cross-course. This lode east is now nearly 2½ ft. wide, and will yield fully 2 tons of copper ore per fathom, and looks, at present, like a permanent shoot of ore.

**NORTH BUSY UNITED.**—John James, June 25: The only change is we have an increase of water in the 15 cross-cut south, but have not yet cut the lode. In the 15 driving east the lode is larger, producing some good stones of tin.

**NORTH GREEN HURTH.**—James Polgaue, June 18: The No. 1 vein east looks promising, but so far no lead. The drainage west on No. 2 vein is without change.

**NORTH TRESKERRY.**—Pryor and Son, June 24: The several points of operation on the tin lodes, and contained in our last week's report, maintain their value.—Baron's Engine-Shaft: The 38 cross-cut is being driven with speed to cut through the lode, where we are meeting with the same characteristic features that were met with in the cross-cut above at the 24. It is also noteworthy to remark that the length of this cross-cut is the same as the 35 at the 24; the ore is of a richer quality, and, judging from the large increase of water here this day out, we are near a very extensive and valuable piece of ground on this lode. The stamps engine-house is now roofed, the scaffolding is being taken down, and the engineers are making good progress in putting the several parts of the stamping-engine together. All other surface work is likewise progressing satisfactorily.

**PARTIN.**—Thomas Parkyn, June 24: Since my last report good progress has been made in holding the shaft with the cross-cut. I put in two charges of dynamite, which has so far enabled us to let down the water that by the end of next week I hope to have the communication completed. We are busy cutting out foundations for engine and boiler house, and receive the 35 in engine that has been purchased. All other work progressing satisfactorily.

**PATTERSYKE AND CLARGILL HEAD.**—John Peart, June 19: The drift going south from Archer's rise in Sir John's vein continues to improve, the vein is fully 3 ft. wide of mineral not so red as we would like, it is a free kind of quartz good to work, with samples of lead and copper ore but scarcely worth saving. We have got quit of the douke that generally composes this vein when it is not carrying ore altogether the appearance at this point is very much better. The men in low level are raising a little ore we just take out what will pay; at 5s. per ton, and worth for tin 10s. per fm. The 150 is being driven west of cross-cut, by six men, at 9s. per fm., with good stones of tin. The 137 rise is working by nine men, with a machine, at 8s. per fm., where the lode is worth for tin 8s. per fm. The 112 is driving west of cross-cut, by six men, at 8s. per fm. The lode is of a very promising and congenial character, and worth for tin 6s. per fm. The wine sinking behind this end by nine men, at 5s. 10s. per fm., and 5s. per ton is worth for tin 15s. per fm. The 112 driving east of cross-cut by two men, at 5s. per fm., is worth for tin 7s. per fm. There are three stopes in 112, No. 1, by 12 men, at 4s. 3d. per ton, worth for tin 15s. per fm. No. 2, by 12 men, at 5s. per ton, worth for tin 12s. per fm. No. 3, by 12 men, at 5s. 3d. per ton, worth for tin 20s. per fm. We have 26 pitches working by 62 men on tributes varying from 12s. to 13s. 4d. in lb. on a standard of 45s. per ton for tin. We have sold during the past month 33 tons 1 cwt. 1 qr. 24 lbs. of tin.

**PLUSHEY'S.**—Thomas Trelease, June 25: There is no change worthy of remark in the character of the ground in our cross-cut since my last report. We have an increase of water, which we may naturally expect as we get nearer the lode. We have sunk 7 ft. below the level for a fork, and now purpose putting in a drawing-lift, which will enable us to dispense with a considerable amount of manual labour, and have also driven 5 fms. in the cross-cut since my last report.

**POLOREBO TIN.**—W. H. Martin, John Richards, June 24: Highbarrow Shaft: At the 60 we have finished cutting ground on the north side for wine tackle and barrow-rod, and to-day have started sinking under the 60. In cutting plot and ground for barrow-rod, &c., we intersected some branches to the north which produce tin; these are droppers to the lode. The preparatory work for sinking at the 60 has occupied more time than at the levels above, owing to the hardness of the capels on the north side of the lode. The lode in the 60 east is opening wider. Observing more water issuing from the south side we cut a hole and intersected another part of the lode standing south of the level; the end is being pushed on rapidly to reach the dip of ore from the 50. In the 50 each we intersected a cross-branch which heaved the lode a little north, east of which we have a large spar course on the dip part of the lode full of vughs, and water flowing strongly. A few feet east of the cross-branch we purpose to cross-cut north a short distance to see what lode is standing in that direction.

**PRINCE OF WALES.**—S. Roberts, June 24: In the cross-cut south, in the 115 fathom level the ground is rather hard at present, being full of hard capel branches all of which contains tin. We are making fair progress in driving east to open for a plat at this level. In consequence of putting the shaft in order for hauling from the bottom delayed the winding and stamping for a week. We are making every effort to push on that work so fast as possible against our tin sale next week.

**ROMAN GRAVELS.**—Arthur Waters and Son, June 25: The 12s north, towards the junction of east lode, continues in a lode 6 to 7 ft. wide, carrying lode on both sides of the driftage, present area being 12s. east of the 12s. The 12s north is going forward on the hanging-wall portion of the lode, which

is 7 ft. wide, the value for ore to-day being 2½ tons per fathom. A very wide sparry lode is standing on the footwall side of the level here yet to be proved. The 110 south is in a lode 6 ft. wide, there being much more lode standing on footwall side as in the level below; value of the end to-day 1 ton per fathom, the men stopes in back of this level, to the north and south of Blockley's and Watkins' wine, are worth together about 12 tons per fathom. The 85 south, on east portion, shows a lode 3 to 4 ft. wide, worth 1 ton per fathom, and looks likely to improve in a day or two. The two stopes in back of this level, east of Morris' wine, are worth 5 tons per fm. The 80 south is in a lode (east portion) 3 ft. wide, spar and stones of lead ore. Two stopes in back of this level are worth 4 tons per fm. These stopes are about 15 fms. beyond the 65, and in one place No. 2 stope which is following the 80 and end is worth 6 tons per fm. It may be well also to say that the 80 is about 20 fathoms beyond the 65 end. We have not seen a trace of the south shale anywhere below the back of the 65, hence we are watching all the south drivings with a good deal of interest, knowing that the principal run of ore in the mine from surface to the 65 stopes was found in immediate contact with the shale. The 100 tons lead ore sold to-day realised 762s. 10s., and the 70 tons blende 115s.

**RUSSELL UNITED.**—John Bray, June 25: The water is in fork at Stephens engine-shaft; we shall now push on the 57 west as fast as possible, the level is 5 ft. wide, and the lode is composed of flokan, pryan, little quartz, and capels—producing tin throughout. The lode in the deep adit, east of the cross-course is 3 ft. wide, composed of flokan and pryan, with a little quartz, and is not sufficient to value. From indications this morning we may fairly expect an early improvement. The lode in the stopes at this level continues 11 ft., with capels, peach, quartz, munda—producing tin in paying quantities.—Surface Work: We shall get the 12 heads of stamps at work by the time I reported at the meeting on June 18 last.

**STANDARD LEAD.**—W. H. Borlase, June 25: The lode in the new shaft has somewhat improved for lead during the past week. It is now 4 ft. wide, producing 3 tons of average quality blende per fathom. There is no other change to notice.

**SOUTH CONDURROW.**—William Rich, W. Williams, H. King, June 24: The levels driving west of Marshall's shaft are without any improvement to notice. The 52 west yields good stones of copper and a little tin. The 93, east of King's shaft, is worth 10s. per fathom. The 80 end east is worth 8s. per fm. The stope in the back of this level is worth 10s. per fathom. The 80, west of Plantation shaft, carries good stones of tin. The 70, east of King's, is worth 10s. per fathom. The stope in the back of this level is worth 10s. per fathom. The wine in the 50 east is worth 10s. per fathom. The north part of the lode in the 50 east is now 2½ tons per fm. through 30 far as yet seen the lode carries low quality tinstone. The stope in the back of the 60 east is worth 9s. per fathom. In the 50 east we are driving north through the lode which is yielding saving work for tin. Two stopes in the back of this level are worth 1 s. 4d. and 12s. per fathom respectively. The rise in the back of the 50 is communicated with the wine below the 40; this has given good ventilation, and opened the lode for stoping where it is worth 12s. per fathom. The 40 and east yielding saving work for tin. The stope in the back of the 40, west of engine-shaft, is worth 8s. per fathom.

**SOUTH DAREN.**—John Mitchell, June 25: The following bargains were set on Saturday last for one month:—To sink the shaft, by 12 men, at 15s. 10s. per fathom. It is now sunk 51 ft. 9 in. under the 130. To stope the No. 2 stope in the 130 west, by four men, at 2s. 12s. 6d. per fathom; worth fully 1 ton of silver-lead ore per cubic fathom. To stope the No. 3 stope in the 130 west, by four men, at 3s. 2s. 6d. per fathom. This stope is about 12 ft. wide, and worth 15 cwt. of silver-lead ore per cubic fathom. To stope from the side of wine in the bottom of the 120 east, by four men, at 3s. 15s. per fathom. This should be a pretty good stope, but there is not yet much ground broken here we cannot value it correctly. To stope the back of the 12 west, by four men, at 3s. 15s. per fathom; worth 15 cwt. of silver-lead ore per fathom, with a mixture of copper. The filling of the skips, at 7s. per 100 skips. The landing of the skips, at 5s. 3d. per 100 skips. We shall have ready for sampling on Tuesday next about 45 tons of copper ore.

**SOUTH TOLCARNE.**—June 23: Plat Lode: In the 80, east of cross-cut, the lode is tiny, but rather spare for progress, the ground being harder than usual; I think this only temporary. We are progressing very satisfactorily with the driving of the 70 east; the lode is improving in appearance, with tin disseminated in the lode, and I am looking forward to a good improvement very soon.—Gassau Lode: The 45, east of shaft, is looking much better; we have cut a large vugh in the lode, which has caused much easier ground, and is productive of copper ore and saving work for tin. We are now making very good progress in driving. The lode in the 35, east of cross-cut, on Fraser's lode, is looking fairly well, producing tin stuff varying from 20 lbs. to 60 lbs. to the ton. Our pitches on Taylor's lode are improving.

**THE LOVELL.**—Joseph Frisk, Engine-Shaft: The lode in the pump-wine, since the 12, on south side, is 13 ft. wide, worth 10s. per cubic fathom, the said wine is being carried 11 ft. long by 6 ft. wide, as it may be necessary shortly to make it a permanent shaft from the surface for this part of the mine, which can be done for a small outlay. The lode in the stope in the back of the 22, east of engine-shaft, is 6 ft. wide, worth 8s. per fathom.—Air Shaft: The lode in the back of the 14 is 5 ft. wide, worth 8s. per fathom. The lode in the end driving east of shaft is 5 ft. wide, worth 9s. per fathom. Next week we shall commence burning and dressing for the next sale of tin.

**W. Williams.** In the main cross-cut north-east, the country rock for the past fortnight has been hard and spare for driving. I am, however, very pleased to say that we have just cut into a strong and well-defined east and west branch discharging a large stream of water, which I consider a strong indication we are close to one of the main lodes. I placed a pair of men to rise upon No. 1 vein passed through in this cross-cut, which is composed of very congenial matrix, and producing good saving work for dressing, and promising for an early improvement. Excellent progress continues to be made in sinking the new shaft in the eastern mine, which is now down 10 fms. We have this morning drawn a nice sample of ore stuff to surface; other points going on well.

**TREVAUNANCE UNITED.**—William Vivian, June 25: We are pushing on the cross-cut south of the eastern shaft, by six men. We have intersected a branch much the same in character as the one we cut in the cross-cut south of the engine-shaft, about 8 fms. before we intersected the copper lode. The erection of the engine and sinking of the engine-shaft is being pushed on with all speed.

**WEARDALE.**—James Blenkinsop, June 20: Killhope: Very unsatisfactory progress has been made in the Killhope head sinking; the water is being drained from the old workings. I think there will be no difficulty in proving Quarry Hazel very shortly; the water was lowered 7 in. in an hour during last Tuesday when I was on the works.—Grove Rake: In the top drift from Moss rise, towards Bates' stope, the vein is 3½ ft. wide, and worth 20 cwt. of ore per fathom; ground firm. In the cross-cut on Gardner's rise a branch has been discovered, quick for ore. Greenclough stopes are looking well, worth 20, 25, 40, and 50 cwt. per fathom respectively. The stopes in Rake vein are worth from 12 to 30 cwt. per fathom. In Brandon Wells rising the vein is more kindly, and improving, worth 8 cwt. of ore per fathom.—Pasture: In Nattrass Gill drift the vein is 2 ft. wide, worth 12 cwt. of ore per fathom. In Dawson's rise, above Donaldson's, the vein is nicely improved, still in greybeds; vein 3 ft. wide, with a good bunch of ore in the east end, worth for ore 25 cwt. per fathom, with every indication of further improvement; ground very firm. Greenlaw: In Jackson's rise, above the main level, the vein continues bad, 2½ ft. wide, composed of coarse spar and rider. The drift above Dent's level has improved; the vein is 1½ ft. wide, composed of spar and carbonate of iron, worth 8 cwt. of ore per fathom, and indications of further improvement. The tribute pitches are looking, if anything, a shade better.

**WEST CARADON.**—S. Richards, June 24: Gilpin's lode in the 35 is about 18 in. wide, but unproductive. No. 5 lode at this level is 2 ft. wide, but iron; consequently it is still poor. After the last lode in New West Caradon has been driven on east some little distance to get its proper bearing, we shall search for it in this mine, as I consider, from the present appearance of the lode, it will be a good thing for this mine also.

**WEST KIDLY.**—William Vivian, June 25: In the 84, driving east of No. 1 rise, the lode is worth 10s. per fathom. In driving east of No. 2 rise the lode is worth 12s. per fm. In the 80, driving east of cross-cut, the lode is worth 12s. per fm. In the 80, driving east of No. 3 rise, the lode is worth 10s. per fathom. In the 40, driving east of No. 1 rise, the lode is worth 9s. per fathom. The stopes in the bottom of the 72 are worth 20s. per fathom. The stopes in the back of the 72, east of rise, are worth 14s. per fathom. In No. 2 stope, east of rise, the lode is worth 15s. per fathom.

**INSURANCE SHARES** have, according to this evening's report of Messrs. W. L. Wrenn and Co., of the Stock Exchange and Finch-lane, been dealt in as follows:—Alliance British and Foreign, 35½ to 35½; City of London Fire Limited, 56; Commercial Union, 167½; County Fire, 150; Employers' Liability Assurance Corporation (Limited), 15½; Indemnity Marine, 11½ to 15; Liverpool, London and Globe Fire and Law, 25½; London, 45 to 46½; London and Provincial Marine (Limited), 4; National Marine (Limited), 17½ to 15½; Rock of 4½; Royal Exchange, 4½; Thames and Mersey Marine (Limited), 11½ to 14½; Universal Marine (Limited), 2 to 2½. Insurances steady.

**C. PASS AND SON, BRISTOL,**  
ARE BUYERS OF  
LEAD ASHES, SULPHATE OF LEAD, LEAD SLAGS,  
ANTIMONIAL LEAD, COPPER MATTE, TIN ASHES, &c.  
and DROSS OR ORES containing  
COPPER, LEAD, AND ANTIMONY.  
**TO THE METAL TRADE.**

**FOR COPPER, TIN, LEAD, &c., apply to—**  
MESSRS. PELLY, BOYLE, AND CO.,  
SWORN METAL BROKERS,  
ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.  
(ESTABLISHED 1849.)

**GEO. G. BLACKWELL,**  
CHAPEL STREET, LIVERPOOL,  
HANDLES  
MANGANESE, BARYTES, SPARS, AND ALL ORES ON SALE  
OR PURCHASE.

**HENRY WIGGIN AND CO.,**  
(LATE EVANS AND ASKIN),  
NICKEL AND COBALT REFINERS,  
BIRMINGHAM.

**QUIRK, BARTON AND CO.,**  
61, GRACECHURCH STREET, LONDON, E.C.,  
ARE BUYERS OF  
LEAD ASHES, SULPHATE OF LEAD, LEAD SLAGS, &c.,  
AND DROSS OR ORES CONTAINING LEAD.

ESTABLISHED 1868.—THIRTEEN YEARS IN CORNWALL.

**SAMUEL JAMES,**  
STOCK BROKER AND MINING SHARE DEALER,  
14, ANGEL COURT, LONDON, E.C.  
Member of the Redruth Mining Exchange.

Those who wish to buy or sell any mining shares should consult Mr. JAMES. Mr. J. devotes his entire attention to home and foreign mines, and places his special information at the disposal of his clients. That mining offers undoubted advantages for quick returns no one can deny. Look at the enormous sums of money paid in dividends by home and foreign mines. A large number of wealthy families owe their present proud positions to adventuring in LEGITIMATE MINES. With a better price for metals many of the smaller priced shares would immediately advance some hundreds per cent.

NEW CHILE SHOULD BE BOUGHT AT ONCE.

There are many mines worth attention, as proceedings of recent shares holders' meetings prove beyond doubt. During the last 40 years there has not such opportunity presented itself as the present for investment in British mines. Metals are certain to advance. In well-informed circles no doubt is entertained on this point. Buyers must not further delay orders.  
See Selected List published by S. JAMES, 14, Angel-court, London, E.C.

**SPECIAL BUSINESS** in the following or part:—  
20 Bedford United, 17s 6d  
40 Carn Camborne, 3s.  
20 Devon Con., 23s.  
200 Devon Friendship, 6d  
100 Drakeville, 3s. 9d  
20 East Blue Hills, 39s.  
20 Ecton, 20s.  
20 East Wh. Rose, 3s. 3d  
50 Frongoch, 5s. 6d.  
10 Great Laxey, 28 2s. 6d  
25 Gunnislake (Clit.), 6s.  
20 Great Holway.  
50 Home Mines Ltd., 13s 9d  
25 Killfretth, 17s. 6d.  
15 Kitty St. Agnes, 13s 9d  
20 Leadhills, 31s. 3d.  
20 Mounts Bay, 2s. 6d.  
20 New Kitty, 12s.  
50 New West Caradon, 4s  
20 Old Shepherds, 4s.  
20 Phoenix United, 26s 3d  
20 Polberro, 40s.  
50 Prince of Wales, 7s.  
90 Parys Copper, 6d.  
30 Roman Gravel, 72s. 6d  
30 South Caradon, 5s. 6d  
20 So. Condurrow, 27 2s 6d  
25 South Darren, 4s. 9d.  
10 South Frances, 29.  
50 Trevaunant, 3s. 3d.  
50 Trevaunant, 37s. 6d.  
25 Van, 20s. 6d.  
10 West Killy, 27.  
4 \* S. JAMES can buy or sell any of the above shares. Correspondence invited. Trustees, executors, and others will find their duties considerably lightened by submitting schedule of shares held to Mr. JAMES, who will return the same by next post with market values attached.  
Orders by letter or telegram promptly attended to. Speculative accounts not opened on any terms whatever. Send for selected list of Mines. CLOSING PRICES issued every Tuesday and Friday.  
BANKERS: IMPERIAL BANK, Lothbury, E.C.

**THOS. ELS AND CO., STOCK AND SHARE DEALERS,**  
6, BOND COURT, WALBROOK, LONDON, E.C.  
THOS. ELS AND CO. have special business in the following:—  
200 Balkis, 1s. 4d.  
50 Bratsberg, 18s. 9d.  
100 California, 2s. 9d.  
75 Callao Bis, 12s. 6d.  
150 Chile, 3s. 6d.  
100 Colombian Hyd., 11s 9d  
90 Frontino, 10s. 6d.  
30 Ecton, 20s.  
100 East Rose, 3s. 9d.  
Home Mines Trust.  
120 Hoover Hill.  
200 Indian Consol., 3s 6d  
80 La Plata, 5s. 6d.  
La Trinidad.  
200 Lisbon-Berlyn, 1s. 4d.  
20 Montana, 38s. 9d.  
40 Mysore Gold, 33s.  
50 New Emma, 9s. 9d.  
50 Oscar, 11s.  
100 Organos, 5s.  
50 Orita, 25s.  
20 Schwab's Gully, 23.  
100 Ruby, 3s. 6d.  
50 Victoria, 5s.  
20 Rio Tinto, 210 9s.  
15 Schwab's Gully, 23.  
25 Spitzkop, 6s.  
100 Taquial, 1s. 9d.  
30 Tocopilla, 2s. 6d.  
22 Tolima, A, 23 5s.  
100 Transvaal Gold, 1s. 9d  
50 Tambracherry, 4s. 6d.  
20 U. Mexican, 23 1s. 3  
20 Victoria Gold, 5s. 6d.  
100 West Callao, 2s.

### NEARLY NEW MINING PLANT AND MACHINERY.

Comprising 25 horse power boiler, by Hathorn; donkey pump; 16 horse power driving engine and drum; air compressor; egg end air receiver; Eclipse rock drills; smith's forge; headstock; pulleys and steel rope; tanks; piping; vices; benches and sheds.  
May be bought together or separately.  
Address "Alpha," MINING JOURNAL Office, 26, Fleet-street, London.

**IN the MATTER of the COMPANIES ACTS, 1862, and in the MATTER of the DEVON GREAT UNITED COMPANY (LIMITED).**

Notice is hereby given, that the CREDITORS of the above named Company are required, on or before the 17th day of July, 1885, to send their NAMES and ADDRESSES, and the PARTICULARS of their DEBTS or CLAIMS, to JOHN LANGTON and WALTER HENRY ALLEN, the Liquidators of the said Company, at the offices of the undersigned, and if so required by notice in writing from the said Liquidators or by their Solicitors, to COME IN and PROVE their said DEBTS or CLAIMS at such time and place as shall be specified in such notice; or, in default thereof, they will be EXCLUDED from the BENEFIT of any DISTRIBUTION made before such debts are proved.

G. H. BARBER and SON,  
Founders' Hall, 13, St. Swin's Lane, E.C.,  
(Solicitors to the above-named Liquidators.)

17th June, 1885.  
Just published, crown 8vo., 7s. 6d., cloth (postage 6d.)  
**PATTERN MAKING: A Practical Treatise, embracing the Main Types of Engineering Construction.** By a FOREMAN PATTERN MAKER. With upwards of 270 Illustrations.  
"An excellent *va-te-mecum* for those who desire to become masters of their trade."—*English Mechanic*, June 19, 1885.  
"We confidently recommend this comprehensive treatise."—*Building News*, 12th June, 1885.  
CROSBY LOCKWOOD and Co., 7, Stationers' Hall-court, London, E.C.

**MINING OFFICES, 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.**

ESTABLISHED UPWARDS OF FORTY YEARS.

**MESSRS. WATSON BROTHERS,** in referring to their public Circular in the *Mining Journal*, would also observe that they BUY and SELL SHARES at the *net* market prices of the day in all well-established and respectable Mining Companies; also, in English and Foreign Funds, Railway Stocks, &c.

**MESSRS. CLARE AND CO., STOCK AND SHARE DEALERS,**  
15, AUSTIN FRIARS, OLD BROAD STREET, E.C.

**BANKERS—THE ROYAL EXCHANGE BANK (LIMITED).**  
SPECIAL BUSINESS in all FOREIGN GOLD, SILVER, COPPER, and DIAMOND MINES.

**DENT'S NEW ILLUSTRATED CATALOGUE**  
of High-Class Watches and Clocks at  
Reduced Prices sent Post Free on application  
to **E. DENT & CO., Watchmakers to the Queen, 61, Strand, London, W.C.;**  
or 4, Royal Exchange, E.C.

### ELECTORS OF THE MINING DIVISION OF CORNWALL.

My determination to go to the Poll as the Champion of the New Democracy in this Constituency is already well known to you. I have recently at many meetings so fully laid before you my political principles and the Reforms which, as a Member of Parliament, I shall not only advocate, but introduce Legislation to establish, that I need not now repeat what I have already told you. Those who have not already heard me, I would ask to read the Leaflet I have widely circulated, embodying my Political Creed as a Radical, and a thorough, earnest, and consistent supporter of our great Leaders—Gladstone, Bright, Chamberlain, and Dilke.

To that "Radical Platform of the Future" I will only add a few words on certain important points not touched upon in that Leaflet.  
(1) I am, in Religion, a member of the Church of England, and a conscientious supporter and advocate of the Christian observance of the Sabbath, and of the necessity for Legislation on strictly Christian principles. The opening of National Museums or Public Libraries for a few hours on Sundays I have consistently advocated on religious grounds, but in no sense as a compulsory measure for the whole country. In this, as in other matters, I claim for every city or municipality the right to act as the majority of the inhabitants think fit and proper.

(2) I am prepared to introduce Bills to secure the appointment of Working Miners as Government Inspectors of Mines; to secure for the Miners the sums deducted from their wages for Club Subscriptions, which at present are lost to them, in case of failure of the Company of Adventurers; to substitute fortnightly for monthly payments, and to abolish the "in hand" system.  
(3) I am also in favour of the Railway Servants' Ten Hours' Bill, and of such other and similar measures as may be necessary for the protection of young employees of both sexes in local and other industries.

(4) I regard a Member of Parliament as the delegate of his constituents, whose functions should be rather to speak than to think for those whom he represents. The electors of this country being in all respects competent to think for themselves, it would be an impertinence for their members to run counter to their express wishes, and, therefore, I should always esteem it my duty, in the unfortunate case of finding myself at variance with my constituency, to submit myself to their will or to resign my trust into their hands.

Yours faithfully,  
C. A. VANSITTART CONYBEARE.

### Notices to Correspondents.

Letters containing Correspondence and all other Contributions should be addressed to "The Editor." Rejected matter cannot be returned. Correspondents are requested to write on one side of the paper only.

Communications relating to Advertisements, Subscriptions, or applications for copies of the *Mining Journal* should be addressed to "The Publisher." The Annual Subscription to the *Mining Journal* is £1 4s., post free.

**THE FOLLOWING ARE THE RATES CHARGED FOR ADVERTISEMENTS**  
Government Notices, Companies' Announcements, Auction Sales, &c. ONE SHILLING PER LINE.  
Lowest charge ..... 7s. 6d.  
Prospectuses: Per Column ..... £12 12 0  
Per Page ..... 30 0 0  
Situations Wanted, &c. EIGHTPENCE PER LINE.  
Lowest charge ..... 4s.

### TRADE ADVERTISEMENTS.

Single Column, 13 times, 52 times.  
One inch ..... 5s. 6d. .... 4s.  
Across two columns, twice the above.

Cheques should be payable to the Proprietors, *Mining Journal*, and crossed, "London and Westminster Bank."

## THE MINING JOURNAL, Railway and Commercial Gazette,

LONDON, JUNE 27, 1885.

### CORNISH MINING AS A FIELD FOR SPECULATION.

When we consider what money is yearly invested in foreign mines by British speculators we cannot but ask ourselves if those who seek such channels in the desire of money begetting money pay that attention to some of the more promising mines in Cornwall that they might do, and benefit thereby. There are advantages in investing in home mines which give evidence of success, or are successful, that do not pertain to foreign mines—advantages which are deserving of the most careful attention. We mean, first, that anyone, for a mere trifle, can have the most experienced advice from mine agents in the county; and, in the second place, the mines are easily accessible from London, or, as a matter of fact, from any part of the United Kingdom, for we cannot imagine any gentleman seriously contemplating the investment of a fair sum in mining would object to a railway journey into Cornwall. We said last week that we believed tin will not recede in price; that, if anything, it will, ere long, go higher; in short, that there was every favourable feature, so far as we could see, in respect of this metal. We can observe no reason for altering that view. Sincerely holding this opinion we would lay special strength on this fact, that, while we have had a very material increase in the metal recently, mine shares have not moved up as rapidly as might have been expected, and there is ground for the belief that in a number of tin mines prices will further advance. Some of the shares can only be regarded as cheap. A most pleasing feature in respect of the advance in tin has been the gradual improvement in several mines. There comes to mind the thought that this is a remarkable coincidence. For instance, there are Carn Brea and Tincroft. The former mine can only be looked upon as having been in its day a grand old concern. Yet, during the last two years, the losses have been simply crushing. Had not several neighbouring mines and the lords come to the assistance of Carn Brea it would have inevitably ceased operations—at least, so far as Mr. WILLIAM TEAGUE, the largest shareholder, was concerned. This has been plainly apparent from that gentleman's utterances, and even as he held one-third interest in the property, it is hard to conjecture by whom additional help was to have been afforded. Even the last meeting was anticipated by some to result in the abandonment of the mine, and so anxious were the surface people to know the result of the meeting that the query generally was—"Ave they knackered her?" The meeting, of course, did not do this, but Mr. TEAGUE clearly hinted that unless there was an improvement the prolonged period of existence would be six months only. In these six months he looked for the best to the High-burrow part of the set, "which had once proved the salvation of the mine." And from this part Carn Brea is expected to owe its renewed career. Then there is Tincroft, which promises well, no call being anticipated at the next meeting. But the greatest surprise, perhaps, during the past two years have been West Frances and Wheal Bassett, while Wheal Grenville has surprisingly improved, as our report this week abundantly testifies. Hardly two years since, West Frances shares were being sold, on the Saturday before the meeting, for sixpence per share. There was then a heavy debt against the mine; but what was said at this meeting? It is just now refreshing to refer to that event. We notice that on that occasion the costs for four months were 4140*l*. Against this there were

sold 38½ tons of tin, realising 2002*l*, and leaving a loss on the working of 2165*l*. It was at this meeting—or, rather just prior to the meeting—that certain large shareholders expressed their intention of shutting up the mine; but on Capt. THOMAS advising not to do so before proving the ground, which has since become so rich, they were deterred. We find the following stated at the meeting by the manager, that "they had got into settled ground to the west of the cross-course at the 174; that they would certainly have a lode there; that if they did not have a rich bunch of tin he should be disappointed; that he did not know of a better place in the district to look for it than the point they were driving in; and that if cut it would be in ground whole to the surface." These were hopeful words, and Captain THOMAS's anticipations have been abundantly justified. It is scarcely possible to value the tin ground already laid open—tin ground which has, so far, been proved by a rise to continue almost to surface. Prior to this discovery, West Frances had been losing, for several years past, close upon 8000*l*. per annum, and while tin realised at this account 52*l*. per ton, comparing assets and liabilities we observe there was a loss of 56*l*. per ton on every ton raised. But that period has happily passed. We have advised our readers to peruse the report of Wheal Grenville, and the meeting at Wheal Bassett is of so recent date that we need not further allude to it. Dolcoath and East Pool are too well known to require details—they simply seem inexhaustible for tin. The St. Agnes mines are, taken together, very promising. We have thought these introductory remarks not out of place in laying the subjoined tabulated list of the marketable value of certain leading mines before our readers, we only reverting to six months' issue:—

Mines.	Dec. 3, 1884.	June 24, 1885.
Dolcoath .....	£314,900	£332,520
East Pool .....	243,200	283,200
Carn Brea .....	18,000	24,000
Blue Hills .....	800	3,600
East Blue Hills .....	4,000	22,500
South Frances .....	29,250	42,750
Tincroft .....	40,500	45,000
West Bassett .....	12,000	15,000
West Frances .....	43,008	50,688
West Seton .....	6,000	13,000
Wheal Grenville .....	37,500	63,000
Wheal Bassett .....	13,814	59,368

### ANOTHER REDUCTION IN THE TIN STANDARDS.

This week has witnessed another reduction of 2*l*. per ton in the standards. And while this reduction took place on Monday, in London there was an advance that day of 1*l*. per ton. Will our readers believe that directly after the smelters arrived at their decision one of these gentlemen, in response to a question from our local representative as to the reason of the drop, replied that tin was down in London 5*l*. This must evidently have been a startling piece of information to the smelters after they had resolved on the drop, and ascertained the actual state of affairs. And if a telegram was to this effect the smelters ought in all fairness to have reverted to the previous order of things. But then they can only move expeditiously in one direction, as the *Mining Journal* has sometime contended. We now hear, however, of a reason for the latest reduction—that there is no demand for English tin, or if a demand not a strong one; that foreign tin is most in request. This is different to the declaration of the smelter we have indicated, who came forward with his five shillings reduction when there was an advancing market. However, the day may not be very far distant when shareholders in the most important mines may consider the advisability of smelting their own tin. But we have no faith in the independent investor doing this. We have the comparatively recent instance of the attempt of Captain TEAGUE, and it is said Mr. STRAUSS, in this particular policy combined, and we know the result.

### THE CARRIAGE OF COAL BY RAIL AND SEA.

The very important question which has long been on the tapis, as to whether coal can be carried as cheap by railway as by sea or by sea and rail combined, is now about to be solved, and that in the most practical manner. In the course of two or three weeks the Hull and Barnsley Railway and Dock will be opened, and as the line passes through districts with sparse populations the directors depend a great deal upon the traffic they will receive from the collieries in South Yorkshire. They purpose carrying a very large tonnage of coal to the Metropolis, some of the sanguine witnesses who gave evidence before the Select Committee estimating it at 4,000,000 tons a year. This is looked upon as an impossibility, and in all probability will turn out to be so. But whatever the intentions of the directors of the Hull and Barnsley Railway may be, there is another factor that will have to be taken into consideration, and that is the intentions of the railway companies that have participated in the traffic since coal was first sent by rail to London in 1845. In that year the quantity sent by railway was 8377 tons, whilst last year it was 6,836,676 tons, so that the amount now derived by the various railway companies for carriage of coal to London has become a most important item of revenue. It is, therefore, not likely that those companies will allow a new competitor to step in and seriously interfere with their old-established trade without a struggle. Then, of course, comes the question as to whether the combined sea and rail route can be made to pay by carrying coal to London at a lower rate than it can be taken by the Midland, Great Northern, and other lines that have termini in the Metropolis. To start with, the Hull and Barnsley Company will have to reduce the assumed rate which has been given. That has been stated as follows:—Railway carriage, &c. (officially stated), 2s. 7d. per ton; wagon hire, 6d.; trimming, 2d.; freight from Hull, 3s. 6d.; City dues, 1s. 1d.; lighterage and landing, 1s. 11d. This brings the total charge per ton of coal going from West Riding to London by rail and sea to 9s. 9d., whilst the existing rate by railway direct is 9s. 2d. per ton, including wagon hire, City dues, &c. Such being the case it is evident that the Hull and Barnsley Company will have to come down to a much lower figure even at starting. But the charge by the old railway companies is considered a very high one, as it has been shown that they can carry coal to the Metropolis at the rate of 2s. a ton for every 100 miles, and receive a good profit. This would make the total cost from South Yorkshire, all things included, 5s. 6d. per ton, and that is a price which would put the Hull and Barnsley system out of the market altogether, as it would, were an extra shilling per ton put on, bring the total up to 6s. 6d. In the early part of 1871, when there was a dispute with the Midland about the rates to London, the Great Northern took the coal there at 4s. 11d. per ton, including dues, &c., and no doubt the company would be prepared to do the same again in the event of serious opposition arising. But it may also be said that Derbyshire being so much nearer to the Metropolis than the West Riding coal is now carried from it at 7s. 1d. per ton, including dues. Derbyshire, too, now supplies fully two-fifths of all the coal that is sent to London by railway, and the Midland Company, in particular, is not likely to see much of such valuable traffic taken from it without a struggle. A reduction of the coal rate to London on the part of one rail-

**GAS SHARES.**--The principal business in these shares, according to this evening's report of Messrs. W. L. Wann & Co., of the Stock Exchange and Finance, here--London & Continental Union Limited, 6½% at 97½%; New Gas Works (Limited), 13¼% to 13¾; Cagliari Gas Water (Limited), 22½%; Commercial Consolidated, 282 to 283; ditto New Stock, 200; ditto Four-and-a-Half per Cent. Debenture Stock, 120; Continental Union (Limited) Original, 41 to 41½; ditto New, 1869 and 1872, 28; European (Limited) New, 11½%; Gas Light and Coke A Ordinary, 236½ to 237½; ditto H. Seven per Cent. Maximum, 155½; ditto Four Per Cent. Debenture Stock, 108½; Imperial General, 254 to 255; ditto Preferred Shares, £100 to £100 10; ditto Preference, 100 to 107½; Monte Video (Limited), 17½ to 17¾; Oriental (Limited); R. Rio de Janeiro (Limited), 22½ to 24; South Metropolitan, B, 232 to 233. Gas stocks are firm with the exception of Rio Gas, which are flat on circular issued to-day.

## Mining Notes.

A SHORT statement in our issue of last week about South Frances reminds us of a humorous incident that occurred years since. It mentioned that an offer had been made of 23,000*l.* for the western part of the mine, from which much is expected in the future, and that years ago 30,000*l.* was offered for the same property. Then the mine was making heavy losses, and a London shareholder, disliking calls, not having a fond desire to put his hands into his pockets, and having evidently a supreme disregard for the barest cultivation of theoretical mining, indignantly demanded why the adventurers could not purchase a "second-hand shaft" rather than go in for the great expense of having a new shaft. This incident was retailed at the meeting last week, and excited a hearty laugh.

We observe that Capt. Charles Craze, at South Frances meeting, hinted that the views propounded by Mr. Conybeare, a candidate for the mining division, if adopted, would have the effect of keeping many outsiders from entering the county, and of bringing Cornwall to a state of bankruptcy. We must certainly dissent from this expression of opinion. Is not Mr. Conybeare right in insisting on dues on profits only? We are nothing communistic, nothing unreasonable in this opinion; indeed, Mr. A. Pendarves Vivian, M.P., is in favour of "dues on profits" in mines, and, like Mr. Conybeare, is opposed to "fines" for the renewal of leases. The enthusiastic character of Mr. Conybeare's meetings certainly afford evidence that a vast number of the electorate believe Mr. Conybeare's views on the mine lease question are, if radical, only just to all concerned.

THE unrepresentative character of the Central Committee for the Mining Division of Cornwall has brought upon it the failure many predicted. Now, Mr. Barker, who received at the meeting 70 votes, against Mr. Conybeare's 156, and Mr. Vivian's 220, has made it known that he, too, does not regard the Committee as properly constituted, and, inasmuch as Mr. Conybeare, before the meeting, declared he should not be bound by its decision, and that on that ground the meeting returned him his previous pledge, and Mr. Vivian's also, he "shall fight the battle to the end." This spectacle of three Richmonds contesting this seat must be eminently diverting to the Conservatives of the county. There is but one way out of the difficulty. The masses—those who are to be enfranchised—indignantly repudiate the decision at Camborne as final, and warmly resent the idea that they shall not have a voice in the choice of representatives, having regard to the fact that the leaders have in a number of instances taken matters in their own hands. The only mode by which disunion can be avoided is by the medium of a test ballot. Mr. Barker is not in the running. Mr. Conybeare is prepared to abide by the decision of a test ballot. He has publicly declared this. Cannot the other two gentlemen agree with Mr. Conybeare, and know the feeling of the whole constituency in this way? The cost would not be nearly as great as a contested election.

SHOULD Mr. Barker persist in his threat also to go to the poll we are of opinion, from what we hear, that his reception, when he shall appear in the constituency, will be of the nature of a warm welcome, which he will not appreciate. He stood his chance as one of two Radicals against the claims of a Whig, and in this meeting of so-called delegates received fewer than one-half of the votes recorded for Mr. Conybeare. Mr. Barker has admitted the superiority of Mr. Conybeare as a politician in every respect. Then why does he assert he will also enter into the contest? While most of the leaders stand aloof, Mr. Conybeare has won to his side the working-man element, and has had this week, at Camborne and Redruth, two enthusiastic meetings, at which strong committees were appointed. One of the outlying villages has just had a test ballot, with the result that of 32 householders, 26 declared in favour of Mr. Conybeare.

COLONEL FLUDYER, one of eight gentlemen invited to address the Mining Division with the view of recommendation as a candidate, has thrown in his lot with Mr. Conybeare, and has been chosen Chairman of that candidate's Camborne committee. The gallant officer, at Monday's meeting, declared that it appeared to him that "at the delegate's meeting many came to vote according to their own inclination, without having taken any steps to ascertain the wishes of those they should represent, and that the delegates were chosen in too great a hurry." This is our own freely-expressed opinion; in fact, there was little choosing, but considerable self-election about the affair.

PEDN-AN-DREA is looking better. In the 120 end on the north lode—the bottom level—the agents have now commenced to drive, and so far are pleased with the prospects held out in this level. Despite the pessimistic assertions as to the difficulty to be encountered in forking—in draining the mine, we may say that the water is now 4 fms. below the 130, and it is expected that in a fortnight the mine will be drained to the bottom of the shaft—the 140. Several pares of tributaries have been set pitches in the 130, on the south lode, which is in the old part of the mine, and have accepted at 12*l.* in 1*l.* This part of the mine is what the shareholders have for some time been aiming at. At the last meeting there were 40 tributaries at work; now there are 60.

It is anticipated that the 200, east of Highburrow, at Carn Brea, will be got in under the rich winze coming down from the 187 in about 10 or 12 days.

SINCE writing on Cornish mining, we learn that East Pool has further improved in the bottom. For last week the quantity of tin sold was 29½ tons. A dividend of not less than 25*l.* per share for the three months is expected at the next meeting.

THE increase in the price of tin is looked upon to make a vast difference in the credits for the three-monthly meeting. Last quarter the tin sold was 557 tons, and the tin this time may be reckoned to be an increased quantity—from 20 to 40 tons more. This result should give an increased profit of from 2000*l.* to 3000*l.* Those local people who like such things have given 27*l.* 6*d.* for the dividend. It is possible, however, that the committee will seek to avoid the comments they were last time subjected to for being, as the leading mine in the county, dependent on the bankers for the loan of money, and for carrying forward from time to time as a credit some 4000*l.*, which forms actually a debit. The last parcel of tin sold realised 52*l.* 12*l.* 6*d.*, which is a large increase on the average for the previous account.

MANY Cornishmen will regret the removal from the county of Mr. Husband, C.E., of the Hayle Foundry Company. This gentleman goes to London for his own firm. Mr. Husband is highly esteemed in the county. He is an engineer of much ability, and has invented a pneumatic stamp, which was used at Trogenbo and Tregurtha Downs, and which is in use on the American Continent. Mr. Husband has been President of the Cornwall Mining Institute, and took special pains to impress upon young miners the necessity of becoming acquainted with the scientific as well as the practical part of mining, informing them how in the former respect foreigners eclipse Cornishmen abroad.

It is now regarded as practically an accomplished fact that Tincroft will make no call at the next meeting. It is rather believed there will be no loss shown.

OUR statement last week in reference to the probable re-starting of Great North Downs, in Cornwall, has been confirmed. The Messrs. Taylor are the firm that has the matter in hand. Great North Downs was very productive for copper. There are several prominent lodes, both for tin and copper, which run through the length of the sett. There are also many junctions of lodes, which were actually in existence at the stopping of the mine, and in some cases would have been reached within a very small distance of further exploration. The lodes have produced a large quantity of tin close to the surface, and the lodes cut at the greatest depth were productive. The serious drawback to Great North Downs was through the influx of water from the eastern mines—Wheal Rose, Ale and Beagle, and Great Wheal Benny. The great county cross-course is between Great North Downs and Wheal Pevor, dividing the sett, and it also divides the Wheal Boys and the Cardew sett from Old Treskerby, which was a very rich mine for tin and copper, more particularly the latter. Great North Downs is shallow, being only some 80 or 90 fms. below the adit. The family of Williams realised great profits here in days past; operations last ceased through the privation of the rival owners of this mine and Wheal Rose, each company striving to get out of pumping its fair share of the water. It is locally believed the speculation is a good one.

THE new lode at New West Caradon continues to realise the expectations formed of it. In the eastern end of the 38 fathom level it is now 2½ ft. wide and worth more than 2 tons of copper ore per fathom, with every appearance of proving to be a permanent bunch of ore. The western end is still in the cross-course, and here the lode presents similar features to what it did at the corresponding point eastward, so it is only reasonable to assume that a good lode will soon be met with in this direction also. Thus far there is every reason to believe that it is Jope's lode, and the views expressed in last week's Journal in respect to the importance of the discovery to West Caradon are this week fully confirmed by the agent of that mine.

WHEAL Grenville has just declared a 5*l.* dividend, which for the price of the share is the best interest paid by any mine in the county, and this was done with very little benefit from the rise in tin, which has taken place since the beginning of May. The mine is now doing very much better, and will pay a dividend of at least 7*l.* 6*d.*, equal to 15 per cent. for this quarter, and will carry forward several hundreds to reserve fund. The object of the reserve fund is to erect a new stamps on the eastern part, where the lode is rich. This will increase the returns ultimately; it is thought 100 per cent.; had it not been for this outlay it could pay a 10*l.* dividend next time, or 20 per cent. per annum on the present price of the share, but when the stamps is got to work it will amply repay the outlay, and will undoubtedly make double the profit it is now making, which means 40 per cent. per annum on the present price. It is, consequently, not surprising to see these shares knocked down by the "bears," which is the usual accompaniment to a rising share, and it is with great pleasure we announce that one has just been trapped, and a very fine one too. Excepting the Russian specie, it is said to be the largest one ever caught, and distinguished from every other specie by its peculiar powers of changing its form momentarily to that of a "bull," and vice versa, and the fortunate proprietor, it is thought, will realise an immense fortune by exhibiting him.

This dividend will absorb 1500*l.*, and leave 120*l.* to be carried to the reserve, a result which is eminently satisfactory. The increase in the sales of tin has been steadily continued, whilst the costs of returning the metal have been as steadily diminished. It is expected, too, that the sales in the current quarter will amount to from 132 to 140 tons, as compared with 127 tons in the past quarter.

THE facts brought out at the meeting of West Godolphin shareholders, on Tuesday, clearly prove that this mine is rapidly approaching the dividend-paying state. Sales of tin are being regularly made, and the actual loss has only been about 80*l.* a month—very small when it is borne in mind that much of the work in progress is merely the opening out of the mine for future returns. The prospects on Bellingham's lode are particularly encouraging. No call was made, as it is believed that the loss on the current quarter's operations will not exceed the credit balance now on hand of 288*l.*

COLONEL Howard, the Chairman of the Glenrock Company, stated to the shareholders at the meeting, on Thursday last, that the cultivation of reha and other fibrous plants, as well as the growth of coffee, were proceeding satisfactorily, and it is believed that the out-turn for the year in this department will show a small profit. As regards mining operations, the work has been prosecuted to a sufficient depth to prove that it will not pay the company to extend its operations in this direction. As regards the West Argentine property, the Chairman, Mr. Hopwood and Mr. B. Pinching, described it in highly favourable terms, and it was agreed that a sum not exceeding 6000*l.* should be advanced to the West Argentine Company, the debentures to bear interest at 10 per cent., and to be convertible into ordinary shares at the option of the Glenrock Company.

At the general meeting of shareholders of the Venezuela-Panama Gold Mine, held on Saturday last, the Chairman (Mr. George Baird) was able to congratulate the shareholders upon the progress which has been made in the construction of works and opening up of the mine. During the past year 16,453 tons of quartz have been crushed, producing 19,846 ozs. 15 dwts. of gold, realising a sum of 76,311*l.* 18*l.* 6*d.*, which, with other sources of income show a profit on working of 1230*l.* 19*l.* 8*d.* But it must be borne in mind that the returns for the past year must be taken as the outcome of work appertaining to the laying out of a mine, against which abnormal charges have always to be placed, so that when the mine becomes more fully developed, increased returns seem certain. Appended to the report of the directors is a valuable report from Capt. Pryor, the superintendent at the mine, which gives an exhaustive and exceedingly clear account of all the operations in progress.

ALTHOUGH the progress at Yeoland Consols generally during the past year has not been quite so rapid as the directors could have wished, still the work done has been of a thoroughly sound and substantial nature. An ample supply of water has been obtained, and the recently erected turbine is doing its work admirably. The stamps were again set to work in April last, and two sales of tin have resulted. The adit level No. 2 has been driven within a few fathoms of the old mine, and the stuff obtained from the drirage is of a richer quality than any yet met with. Mr. Thomas Rickard made a thorough examination of the mine some time ago, and reported most favourably as to its prospects. By an advertisement in another column it will be seen that the directors consider the great value and richness of the property has been fully demonstrated, and they have instructed the brokers to offer to the public the balance of the ordinary shares, in order to work the mine to its full capacity. Regular monthly returns are now being made of the best quality of tin.

CREDITORS of the Devon Great United Company in liquidation must prove their debts on or before the 17th July.

MR. P. Bosworth-Smith, Government Mineralogist for the Madras Presidency, India, writes under date, Ootacamund, Madras Presidency, India, 30th May:—"I have just succeeded in proving that the district manual is wrong, as it speaks as if copper could not be found in the Nilgiris, and doubts whether some found by Colonel ——— was copper, and that it was probably iron pyrites. Now I have found both copper pyrites and galena (a lead ore), although not enough of it to pay to work. Still it is rather good, as other surveyors before this time have made diligent search for copper and found none. His Excellency the Governor has sent for the specimens to see them himself, as he takes a great interest in mineralogy."

MUCH more activity is now noticeable at the Fairfield Ship-building Yard, on the Clyde, than has been the case for many months. Large squads of carpenters are engaged laying the keel blocks for the boat which Mr. Pearce is constructing on his own account, and for the three 5500-ton vessels which the Messrs. Elder have been fortunate in securing. The first delivery of steel is expected in a few days, and the furnaces will soon be re-lighted and work provided for fitters and ironworkers.

THE following circular has been issued by the board to the shareholders of the Wassau (Gold Coast) Mining Company (Limited):—"The amount realised from crushing, in the month of April, is 513*l.* 4*l.* 9*d.* A memorandum of the totals of receipts and expenditure for the six months ending 30th inst., will be circulated early in July."

THE directors of the London and South African Exploration Company (Limited) have declared an interim dividend of 3*l.* per share, less income tax, for the quarter ending the 30th inst.

MR. H. V. Newton, auctioneer and valuer, Polstrong Farm, Camborne, sold by auction on Friday last, at Camborne, the following engines, &c., now standing at South Roskear Mine, Camborne:—70 in. pumping-engine, 90*l.*; 28 in. winding-engine, 90*l.*; 36 in. stamping-engine, with one heavy fly-wheel, &c., 165*l.*; 36 in. stamping-engine, with two heavy fly-wheels, &c., 300*l.*; 16 in. air compressor, with heavy gear, &c., 37*l.*

THE Richmond Consolidated Mining Company (Limited), have received the following telegram from the mine at Eureka, Nevada:—Week's run (one furnace) \$15,000 from 261 tons of ore; refinery \$20,000.

AT Devon Great Consols the lode in the 220 west, in the Railway shaft, on the new south lode, has been cut into, and, so far as taken down, is 4 ft. wide, producing arsenical mundie and tin ore of good quality. Some of the latter has been assayed, and yields 224 lbs. (2 cwt.) of black tin to the ton of stuff, thus showing, as depth is attained on this lode, the probability of its being made profitably productive underneath where the lode was so good for copper. This, it would appear, is likely to be an important point in the future development of this portion of the property.

AT Leadhills the mines have further improved in two points—in the 100 south, and the 10, south of No. 2 winze, and worth about 5*l.* per ton of lead ore per fathom. The gradual improvement in the price of lead will favourably influence this company.

THE directors of the United Mexican Mining Company have received the following telegram:—The excess of returns over outlay on the Mine of San Cayetano de la Ovejera for the week ending June 20, is \$11,000.

ROMAN Gravels Lead Mines continue to look well, as will be seen by the manager's report in another column, from which it would appear a new lode or vein is standing on the footwall side of the level in the 110 and 125 south. An improved price for the half-monthly sale of 100 tons of lead ore, sold on Thursday last, has been obtained, realising 762*l.* 10*l.*, which, with 70 tons of blende sold for 119*l.*, makes the total sales this week 881*l.* 10*l.*

AT Drakewalls the lode in the engine-shaft maintains its full value of 10*l.* to 12*l.* per fathom, and as the water issues freely from the north side of the level, there is a probability of the north lode not being far off, judging from their underlie at the 50. The north lode in the 50 east is worth 6*l.* per fathom, and the rise 5*l.* per fathom. The ground in the 50 west has considerably improved, whilst the lode also shows strong indications of an improvement.

THE gradual rise in lead and lead ores has made further progress during the week. The news received from all parts of Spain yesterday (Friday) of the serious spread of cholera there would, if continued, lead to the closing of many ports, which would stop the exports of lead to England. We may, therefore, soon see a rapid rise in prices for lead and lead ore.

THE Clayton Mine, belonging to the Ecton Company (Limited) is now drained to the bottom (140 fms.), and the manager has sent up to London samples of rich copper ore taken from this depth. Its character and quality are very similar to the samples recently known as the "Kitto pipe," which deposit it is believed to communicate. The manager states that the ore found at the bottom of the mine is of fully as good quality as any found above, and that in a very short time the men will commence breaking ore in entirely new ground. The workings of the old men at the bottom have been of a limited character, and appearances justify the belief that operations ceased owing to the extreme difficulty of working at so great a depth with the then existing appliances, and not because of any scarcity of mineral.

GOLD mining in Spain bids fair to become a very important industry. The Violeta Gold Placer (Limited) is busily "sluicing" for gold on the River Sil, a German company is at work on the River Boeza, and other companies are reported to be at work in the provinces of Lugo and Seville. The results, according to report, are very satisfactory, and other mines are expected to be started in various parts of the Spanish gold district. The Violeta Company has laid out its works on an extensive scale, and when the big pipe (20 in. diameter) is in position, will be able to treat 1000 cubic yards of gold gravel daily. The works at the other placers are on a more limited scale, and at some the water is pumped up by steam power. At a mine in the province of Seville, machinery (the invention of the Marquess de Caicedo) has been constructed to treat 1000 tons daily. This apparatus is, it is said, specially adapted for districts where water is scarce. It is a well known fact that the true secret of successful gold washing is abundance of water easily and cheaply applied; and as regards gold mining in Spain, the prospects of success, are certainly greatest with such properties as the Violeta, which is immediately at the side of a big, deep, and never-failing river, fed all through the hottest summers by the melting snow on the high peaks of the Western Pyrenees and Asturian mountains. From this splendid river any quantity of water can at all seasons be obtained without the aid of machinery of any kind, the supply for the company's sluices being brought right on the works by its own gravity, and flowing day and night as constantly as the river itself.

### NON-DIVIDEND BRITISH MINES.

DIVIDEND MINES.										NON-DIVIDEND BRITISH MINES.										NON-DIVIDEND MINES—continued.									
Shares.	Company.	Paid.	Last wk.	Clos. pr.	Shares.	Company.	Paid.	Last wk.	Clos. pr.	Shares.	Company.	Paid.	Last wk.	Clos. pr.	Shares.	Company.	Paid.	Last wk.	Clos. pr.	Shares.	Company.	Paid.	Last wk.	Clos. pr.	Shares.	Company.	Paid.	Last wk.	Clos. pr.
12000	Bedford Unit., c, Tavla, (211ab.)	1 0 0	1 0 0	1 0 0	12000	Anderson, t, c, Devonshire	5 0 0	5 0 0	5 0 0	12000	Collacombe Consols, c, bl, Lamerton	0 2 6	0 2 6	0 2 6	5000	North Grogwinlon, s, c, Cardigan	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Silver Hill, c, Callington	1 0 0	1 0 0	1 0 0
6000	Carn Brea, c, t, Illogan	1 0 0	1 0 0	1 0 0	12000	Asherton, t, c, Carnarvonshire	5 0 0	5 0 0	5 0 0	3200	Blue Hills, c, St. Agnes	4 18 6	4 18 6	4 18 6	2000	North Levant, c, St. Just	14 18 0	14 18 0	14 18 0	45000	Parys Corporation, c, Anglesea	1 0 0	1 0 0	1 0 0	45000	Parys Corporation, c, Anglesea	1 0 0	1 0 0	1 0 0
4000	Craigant Bosh, t, Cardigan	1 0 0	1 0 0	1 0 0	12000	Breda, s, t, Isle of Man	1 0 0	1 0 0	1 0 0	10000	Breda, s, t, Isle of Man	1 0 0	1 0 0	1 0 0	50000	North Molton, c, m, t, Devon	1 0 0	1 0 0	1 0 0	80000	Old Shepherds, s, t, Cornwall	1 0 0	1 0 0	1 0 0	80000	Old Shepherds, s, t, Cornwall	1 0 0	1 0 0	1 0 0
12000	Devon Consols, c, a, Tavistock	1 0 0	1 0 0	1 0 0	12000	British Mariner's Company	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
4700	Dolgoth, c, t, Camborne	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
6400	East Pool, c, t, Illogan	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
12000	Great Holway, t, c, Plintshire	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
15000	Green Laxey, t, Isle of Man	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
6400	Gunnahill, c, t, Illogan	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
8200	Green Laxey, t, Isle of Man	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
2400	Isle of Man, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
12000	Killifreth, t, Chacewater	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
20000	Leadhills, t, Lanarkshire	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
20000	Levant, c, St. Just	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
4000	Lishoure, t, Cardiganshire	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0	30000	Par. s, St. Austell	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	80000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0	40000	Okel Tor, s, t, c, a, Caustock	1 0 0	1 0 0	1 0 0
10000	Mellancarr, c, Hayle	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1 0 0	1 0 0	20000	Burnhove, t, c, Edmondby	1 0 0	1																

## FATAL COLLIERY EXPLOSION.

Another fatal colliery explosion occurred on Saturday morning at the Burley Pit of the Apedale Colliery, near Stoke-on-Trent, owned by Messrs. Stanier and Company, by which nine lives were lost, and 180 men and boys had a narrow escape of their lives. Several disastrous explosions have previously taken place in the same pit, and on the last occasion 27 men were killed. About 200 men find employment at Burley Pit, and on Saturday morning 192 descended to their work at the usual hour. The workings had previously been examined and reported safe, and the report was entered in the ordinary way. Before the men were sent down the ventilation was particularly good, but in consequence of the colliery warning issued on the previous day, and the sudden recent barometrical changes, a thorough examination of the mine was made, more than usual pains being taken in respect to the accumulation of gas. All went well in the pit until 9 o'clock, when an explosion occurred with terrific force in the South Ten Foot seam, followed by the issue of dense clouds of smoke from the up shaft. The worst fears were entertained for the safety of the men, and as soon as possible James Cadman, certificated manager, and Thomas Hulme, overlooker on the bank at the time, descended the shaft, whilst several exploring parties were organised for the purposes of relief, and to ascertain the extent of injury to life and property. The first report received at the surface was of a reassuring nature, but subsequent reports showed the disaster to have been most destructive.

Mr. C. H. Cadman, general manager, telegraphed at once to the Government Inspectors, Mr. T. Wynne and Mr. A. R. Sawyer. The latter arrived at the scene of the disaster soon afterwards, and conducted the explorations. Cadman shortly after descending was overcome with after-damp, but was brought round, and declined to return to the surface. The place where the explosion occurred was the new seam just being opened out, and fortunately only 12 men were working in it. They encountered the full force of the explosion, nine being killed and others injured. Immediately after the occurrence the men were removed from other portions of the mine with the utmost rapidity, and as far as can be ascertained received no very serious injury, but all must have had almost miraculous escapes. Of the killed four were single and five married.

Mr. Thomas Lunt, secretary of the North Staffordshire Miners' Permanent Relief Society, who only the previous day returned from the scene of the Pendlebury disaster, was one of the early arrivals at Apedale after the explosion, and he says all the killed, with one exception, were members of the society. The recovery of the bodies was somewhat retarded in consequence of the ventilation being deranged and the roadways injured, but all the bodies were brought to the surface during the day. Most of them were terribly mutilated, some being knocked to pieces and others burnt in a shocking manner. Identification in some instances was almost impossible. One of the miners had begun to work at the colliery only that day. The explorers met with great difficulty through the prevalence of after-damp, and other explosions were feared, but fortunately up to yesterday none had occurred.

At present the cause of the explosion is a mystery, but it is believed to have been the firing of a shot.

The following are the names of the killed:—Thomas Heath, Alsager Bank; Henry Heath, Springwood House, Stone; Isaac Jones, Chesterton; Thomas Jones, his son; J. Barker, Alsager Bank; Samuel Hampton, Chesterton; Thomas Lear and James Kastevan, Miles Green; and Joseph Underwood, Chesterton.

## NORTH OF ENGLAND INSTITUTE OF MINING AND MECHANICAL ENGINEERS.

At the bi-monthly meeting of the Institute held, on June 13, in the Wood Memorial Hall, Newcastle-on-Tyne, under the presidency of Mr. JOHN DAGLISH, Mr. THEO. W. BUNNING (secretary) read a translation of the report of experiments carried out under the Prussian Commission on Explosive Gas, at Königs Colliery, Saarbrücken, particularly those on the consequences which arise when blown-out shots come in contact with coal-dust and gas.

The following is an abstract:—The paper states that the great uncertainty which remains as to the part played by coal-dust in pit explosions caused the Prussian Government to institute a series of experiments to set at rest this important question, and after some consideration, and at great expense, a suitable gallery was constructed, and experiments, the results of which are now given, were commenced. The gallery in which the experiments were tried was 167 ft. long, 5 ft. 6 in. high, and 4 ft. wide, inside measurement, with an area of about 18 square ft. It was built up of H iron rings, and cased with planed fir planks, 2 in. thick, tongued together. One end of the gallery was blocked up by a stone building, in which were built seven cast-iron tubes to represent bore-holes; two of these (Nos. 1 and 2) were placed 15 in. apart, and 14 in. from the top; two (Nos. 3 and 5) in the middle, 31 inches apart; two (Nos. 6 and 7) occupied the same position with regard to the bottom as the first two did to the top, and the remaining one (No. 4), which was larger than the others, was placed in the centre. The bore of this latter hole was rather more than 1½ in., that of the others being rather more than 1 2-10 inches; the quantity of powder used in the larger hole was a little over 17 ozs., and in each of the others a little less than 9 ozs. The top and bottom holes were so arranged that their fire would concentrate in the centre of the gallery at a distance of 16 ft. from the masonry. The gallery was buried in a disused cinder heap, on one side up to its roof, and on the other about three-quarters of its height. On the free side there were 32 windows, a little more than a yard apart, which were glazed with thick glass, and there were several other openings and contrivances which acted partly as safety-valves and partly facilitated access to the gallery. About 40 ft. from the face of the masonry there was a wooden frame, by means of which a space containing about 706 cubic ft. could be shut off by means of sail-cloth stretched across and fastened to the wood, and arranged in such a way that a corner could be lifted for the entrance of the attendant. Pit gas was conveyed from a blower in the bottom of the deep workings of the Königs Pit, 393 ft. below the surface, into a gasometer from which it was conducted into the gallery as wanted. The shots were fired by electricity, and towards the end of the experiments a side gallery, 32 ft. long, of the same sectional area as the main gallery, was added; and lastly, there was a small railway at the end of the gallery, rising upward with a gradient of 4 per cent., on which was placed an ordinary pit wagon.

1.—The first experiments were tried to ascertain the effect of shots from the different bore-holes. 33 lbs. of coal-dust were strewed along 33 ft. of the gallery, about ½ in. thick in the middle; this was stirred up, so that the air was well impregnated with it, shortly before each shot. The sprinkling of coal-dust was renewed after every shot in all cases. The shot holes were stemmed both with clay and coal-dust, the latter being always the same as the dust strewed in the gallery. The experiments with clay stemming distinctly showed that the shots from the holes nearest the bottom—although their axes were directed upwards—made the longest flames, from 69 to 59 ft., while those of the upper holes were only from 9 to 26 ft. It was supposed that the greater effect of the first holes was caused by the greater commotion made in the dust at the bottom. One shot, with a charge of 17 ozs. of powder, out of No. 4 hole, produced a flame of 72 ft. The dust used was very fine, and came from the Hansa Pit, in Westphalia. With coal-dust stemming, with dust from a different seam, these experiments produced flames from 78 to 95 ft. long, from holes Nos. 4, 5, 6, and 7; and from 72 to 75 ft. from holes Nos. 1, 2, and 3. These experiments seem to show that the difference between the effect of the several holes was not so great with coal stemming as with that of clay. The lower holes always seemed to give the most decided results.

2.—The second experiments were to determine the effect of strewing the same description of dust over different lengths. Dust was used from the Königs, Pluto, and Neu-Iserlohn pits, and the shots were fired from No. 6 hole with coal-dust stemming. Coal-dust was here spread over a distance of from 32 to 65 and 98 ft. and in almost all cases the flame reached from 36 to 39 ft., but extended much further with the Pluto and Neu-Iserlohn dust was strewed for long distances, so

that with this dust strewed 131 ft. flames came out at the opening of the gallery extending from 16 to 23 ft. that is to say, the flames must have been from 183 to 190 ft. long. When strewing was 65 ft. long it gave rise to heavy detonations, sending forth dark red flames, from 3 to 6½ ft. high, out of the opening and safety valves, with great force, and producing a thick heavy after-damp, smelling strongly of tar, which darkened for some minutes the whole extent of the gallery, producing the effect of a very heavy explosion.

3.—The influence of the different coarseness of dust. The following results seemed to have been obtained:—

With very fine dust indeed	.....	68 to 101 feet flames.
" fine	.....	42 to 68 "
" moderately fine dust	.....	39 to 49 "
" coarse	.....	19 to 39 "

4.—Experiments with the Königs dust, where the same strewing of coal-dust did not commence directly from the place where the shots were fired, leaving places of 16, 24, and 32 ft. long, respectively, from the face of the shot-hole.—These experiments seem to have shown only the usual length of flame due to the mode of stemming, but as at the Pluto, and Neu-Iserlohn dusts seem to have had exceptionally active properties, it is contemplated trying these experiments over again with these dusts.

5.—Series of experiments with different sorts of dusts taken from several districts.—These were mostly tried from holes No. 6 and 7, with 33 ft. of strewing, as well with clay as with coal-dust stemming. The results are given in the following table:—

NAME OF PIT.	CLAY STEMMING.				COAL DUST STEMMING.			
	Length of flame.	Amount of products of distillation.		Amount of products lost from the dust.	Length of flame.	Amount of products of distillation.		Amount of products lost from the dust.
		In the dust.	In the coke found.			In the dust.	In the coke found.	
A.—SCHLESSEN.	Feet.	P. ct.	P. ct.		Feet.	P. ct.	P. ct.	
Fuchs Pit, Wiesbaden, very large dust	23.0	32.5	No coke found		65.8	32.5	22.3	10.2
Karl Georg Victor, Gottesberg, very fine dust	39.4	19.7	14.1	5.6	55.7	19.7	12.9	6.8
Friedrichshofnung, Waldenburg, fine dust	68.9	30.6	19.0	11.6	73.7	30.6	15.4	15.2
B.—SCHAUMBURG.								
From the pits in mining district of Oberkirchen, fine dust	59.0	17.1	No analysis		72.2	17.1	11.8	5.3
C.—WESTFALEN.								
Rhein-Elbe, fine dust	65.6	30.2	No analysis		72.2	30.2	20.8	9.4
Uthrecht, very fine dust	75.4	23.2	15.8	4.1	75.4	20.2	18.5	3.7
Dahlbusch, medium dust	49.2	23.7	No analysis		5.6	23.7	17.1	11.6
Zollverein do	49.2	23.5	18.5	10.5	72.2	23.5	No analysis	
Hansa, very coarse	39.4	16.2	No analysis		52.5	16.2	14.8	1.4
Neu Iserlohn, very fine	78.7	21.3	15.0	8.3	78.7	21.3	11.2	10.1
Pluto do	101.6	21.8	13.6	8.2	108.2	21.8	13.1	8.7
Eintracht-Tiefbau, do	68.8	15.5	9.4	6.1	88.6	15.5	7.3	8.0
Deutscher Kaiser, very fine	65.6	16.9	No analysis		75.4	16.9	11.0	5.9
D.—AACHEN.								
Union Co.'s Pit at Kohlscheid, coarse dust	19.7	—	No analysis		26.2	—	No analysis	
Union Co.'s Pit near Moesbach, coarse dust	19.7	—	No analysis		29.5	—	No analysis	
Maria bei Hängen, fine dust	42.7	11.9	10.5	1.4	65.6	11.9	No analysis	
Anna bei Alsdorf do	52.5	18.7	10.0	8.7	72.2	18.7	No analysis	
E.—SAARBRÜCKEN.								
Griesborn, Walschieder seam, coarse dust	39.4	37.1	No analysis		52.5	37.1	31.0	8.1
Louisdenthal, Beust seam, fine dust	65.6	33.4	25.4	8.0	75.4	33.4	32.3	1.1
Von der Heydt, Heinrich seam, medium dust	49.2	30.7	No analysis		52.5	30.7	28.4	4.3
Reden, Grubenwald seam, fine dust	65.6	30.6	25.1	5.5	62.3	30.6	24.2	6.4
The same, Flötz Kallenberg, fine dust	49.2	35.8	No analysis		72.2	35.8	28.0	9.2
Dechen, very fine dust	75.4	31.6	24.7	6.9	72.2	31.6	19.5	12.3
Dudweiler, seam 12, fine dust	59.0	20.3	16.8	11.5	65.6	20.3	17.5	10.7
The same, seam 10, fine dust	59.0	33.1	23.9	9.2	72.2	33.1	25.0	8.1
Maybach, Flötz A II., very coarse	39.4	32.6	22.1	10.5	49.2	32.6	21.7	10.9
Camphausen, fine dust	62.3	—	No analysis		72.2	—	No analysis	

These results are very varied; in some cases the flames do not seem to differ very much in length, whether stemmed with clay or coal dust; they are alike for the dust of Hibernia and Neu-Iserlohn, and nearly so in many others.

The experimenter remarks that the dryer sorts of dust give the shortest length of flame, with the exception of that from the Fuchs Pit. The longest are from the Neu-Iserlohn and Pluto.

6.—Results of shots in a perfectly diffused mixture of pit gas without strewing of coal-dust.—Different percentages of gas were let inside the portion separated by the canvas screen, and an attendant inside diffused it uniformly through the gallery by means of cloths. The equality of diffusion was very carefully tried by observing the flame of a safety lamp and also very careful analyses were taken of the percentages of the different constituents in the pure gas and in the mixture. In these experiments the holes 6 and 7 were again used and stemmed with clay. Here, with percentages of gas ranging from 1.3 to 6, lengths of flame of from 23 to 46 ft. were obtained, and also about the same results when the dust from the pits Hansa or Dechen was used, to stem the shots. With 7 per cent. of gas the flames reached 108 to 116 ft. which was equal to the result obtained with coal stemming when 32 ft. of coal-dust from the Pluto Pit was strewed. When the gas in the mixture was 6 to 7 per cent., the length of the flame varied with averaged dust stemming between 88 and 141 ft., and with very fine dust stemming from 114 to 144 ft. The greatest difference in these experiments between clay and coal stemming was from 26 to 29 ft. Two heavy explosions were observed after the shots were fired with the last-named quantity of gas, and the colour of the flame varied between yellow and red.

7.—Experiments with respect to explosions of pit gas without perfect diffusion, by means of directed electrical firing, at different levels.—Here as might be expected, the smaller percentages of gas required the exploding spark to be the highest. With 7 per cent. of CH<sub>4</sub>, fired at a height of 2½ ft. above the thill, a length of flame of 121 ft. was obtained, while with 2½ per cent., fired 4 ft. 6 in. high, the flame reached a length of only 19 ft.; with 1 per cent. of gas no explosion took place, even at the highest point. From this it became certain that the pit gas, when it came in, rose perpendicularly, and then disseminated itself in uneven layers over the top of the gallery.

8.—Experiments with shots fired in pit gas, without coal strewing and without diffusion.—Shots were fired from No. 6 hole, and it was found that only when the proportion of gas reached from 6 to 7 per cent. that the flame differed greatly from the usual length with clay stemming, and extended to from 26 to 131 ft. From hole No. 4, with proportions of gas of from 7 to 3½ per cent., lengths of flame of from 154 to 26 ft. were obtained, and with 2½ per cent. the same results as ordinary shots. With shots out of hole No. 1, with from 7 to 1 per cent. of mixture, the lengthening of flame was observed and distinctly traced 118 to 23 ft.

9.—Experiments in respect to the explosion of pit gas, with perfect diffusion, both with coal-dust stemming and coal strewing.—The strewing was with dust from the Königs pit, passed through a ¼-in. sieve, and the shot holes No. 6 and 7 were used. The percentage of pit gas used was from 1 to 7, and the strewing of dust varied from 32 to 65 ft. The results with percentages of gas from 1 to 4, and with the three variations of strewing, were flames of from 36 to 75 ft. long, whereas with the three higher percentages the results given below were obtained:—

32 feet strewing	.....	= 72 to 121 feet long.
50 "	.....	= 75 to 167 "
65 "	.....	= 78 to 170 "

When these experiments are compared with those with coal stemming and complete diffusion, without coal strewing, it is found that in the lower percentages the length of flame remains pretty nearly the same, whereas with the higher percentages very important differences occur. The largest of these flames, however, does not reach anything like so far as that produced when the Pluto and Neu-Iserlohn dusts were strewed 131 feet long, with a shot stemmed with coal-dust some additional experiments were made showing the increased activity

of the Neu-Iserlohn dust by which, with 6 per cent. of gas and 33 ft. of coal strewing, a flame 154 ft. long was obtained.

10.—Experiments with regard to the extending of an explosion to distinctly separated mixture of gas through the sole instrumentality of coal-dust.—These experiments were made in the principal gallery, before the side gallery was put on, and produced no results, because the gas was always driven out by the explosion. In all the experiments already described the principal object was to determine the length of the flame. Remarks are now made as to the speed of the flame, the production of coke, after-damp, and lastly a few words about the mechanical effects of the shots.

11.—Speed of the flame.—The speed of the flame seems to have been usually 2½ ft. per second, but, in certain exceptional cases, it commenced with smaller velocity and afterwards flashed along as quick as lightning. With from 1 to 4 per cent. of gas the speed of the flame did not much exceed 3½ feet per second, whereas, with larger percentages, lightning speed was obtained. One exception was, nevertheless, apparent, in which 32 ft. of Pluto dust were strewed, when, with 2 per cent. of gas, lightning speed was obtained.

12.—Formation of coke.—Of course the quantity of coke depended very much upon the quality of coal used; but, it is remarked that with high percentages of gas, the formation of coke is much less perfect and much smaller than when no gas is present, and there is also a notable falling off in the formation of crusts and knobs of coke hanging upon the woodwork and projecting parts of the gallery. This almost seems to prove that where the shot has been fired in a pit, and good, well-formed coke is found afterwards, that the dust has played a greater part in the explosion than the presence of gas. The reason why, when gas is present, less coke is formed, may be attributed to the quickness of the flame. The most coke was found close to the window No. 6, and here it has been found, after 25 minutes, so hot, that it could not be held in the hand for any length of time. The formation of soot which occurred here with the finer sorts of dust, especially that from the Pluto and Neu-Iserlohn, was remarkable; and also the curious way in which, in the cross section of the strewing, coke was bedded on the top in a mass of soot 4 in. thick, whereas, underneath, the coal-dust still remained unchanged.

13.—After-damp.—It is here also remarked that when the flame reached very far, large quantities of after-damp appeared, and the conclusion arrived at was, that the evil effects of after-damp on the life of man were more dangerous than those which resulted from the explosion of gas. Without coal-dust strewing it was possible to remain in the after-damp for a short time, whereas, when the after-damp came after the experiments where coal had been used, there was generally a very strong smell of tar, and a much higher temperature than in the former cases.

14.—Mechanical effect of the shots.—It has already been remarked that a tub was placed at the end of the gallery. In this tub 650 lbs of stone were placed, and with Neu-Iserlohn dust strewed for 33 ft., without gas, the tub was pushed 2 ft. 6 in. away from the opening; but, with 6 per cent. of gas, it was thrown with violence a distance of 21 ft. The effect of one shot may be cited as having been very remarkable. It was that with 141 ft. of Pluto dust strewing and clay stemming, and which blew the tub 40 ft. away, showing the enormous explosive power of the Pluto dust. In one portion of the work an attempt has been made in some way to summarise the experiments that have taken place, and it is remarked that—

1.—The presence of coal-dust, which exists more or less in the neighbourhood of places where shots are fired, will more or less extend the usual length of the flame resulting from a blown out shot, to some extent in proportion to the greater or lesser quantity of pit gas which is found in the place.

2.—When gas is not at all present the lengthening of the flame is limited, and does not exceed (regardless of the distance to which the coal-dust extends), for the most sorts of dust, 19.7 to 49.2 ft., at least when clay stemming has been used and the sides of the hole give out no gas with the explosion; when coal-dust is used for stemming, the flame may reach 29.5 to 68.9 ft., unless, as before, the sides of the hole give out either coal-dust or gas.

3.—There are, however, certain sorts of coal-dust which, when once inflamed by a shot, continue burning, and not only give appearances of flame over distances greatly exceeding those upon which the dust extends, but cause also real explosions, without the presence of the least quantity of gas.

4.—By the introduction of the smallest portion of gas all the appearances of burning become more intense, but with those sorts of dust which give the shortest amount of flame, a mixture of 3 per cent. of gas only increases the length of the flame to a very small extent, and in no way causes it to extend over the entire length of the place which the dust covers.

5.—When, however, the proportion of gas comes to 4, or 5, or more per cent. these sorts of dust carry forth the flame to an indefinite extent, which otherwise is not the case.

6.—Those sorts of dust which, without gas, carry forth the flame to an indefinite extent become distinctly explosive when mixed with a very small portion of gas, say, under 3 per cent.

7.—Separate collections of pit gas, in situations apart from each other, can be connected and fired by means of coal-dust, even when the first explosion is not caused by an explosive mixture of gas.

Mr. GALLOWAY (London) said that he along with Mr. Lewis, of the Commissioners on Accidents, went to Germany and saw some of the experiments. He described some of the experiments, and said that when a space of 10, 12, or 20 ft. from the shot hole was left without any dust, it was found that the flames were not prolonged, and did not pass over the space which was clear of dust. This, to his mind, was one of the most practical results, for it indicated that if dust was removed from the immediate neighbourhood of the hole, they also removed the immediate danger of shot-firing. The mining people in South Wales some time ago asked the Home Office to make a rule that a space of 5 or 6 yards in front of shot holes should be watered, and this would remove the danger, and to his mind the experiments in Germany showed to a large extent that danger would be removed by such an operation. The Pluto dust created an actual explosion.

After other gentlemen had spoken the discussion was adjourned. A vote of thanks was passed to Mr. Bunning for his translation.

## Labour Notes.

EXCITING and extraordinary proceedings were witnessed at the Denby Main on Thursday. The colliery company, on Wednesday, brought down from the neighbourhood of Stoke over 100 colliers to work the pit, which has been closed six months because of a strike. A special force of 50 West Riding police were draughted to the spot to preserve order. The men on strike contrived to get to the new colliers, and explain to them the state of affairs, and on Thursday they refused to go down the pit, and were induced to leave the district, stating that they were unaware a strike existed. The police, therefore, were withdrawn. The colliery company has been previously baffled several times under similar circumstances.

AN extraordinary case of intimidation was heard at Hemsworth Petty Sessions (Derbyshire), on Monday. When the men employed at Wells Collieries, Eckington, resumed work after the strike, it was supposed that the pit lads would join them. Most of them, however, remained out on strike, and they endeavoured to intimidate others that went in. One youth who had gone back to work was met by about 100 of the workers and shockingly ill-used. The gang followed that violence by damaging Mr. Wells' garden. Two of the lads were on Monday sent to prison for seven days for assault.

MR. CRAWFORD, secretary of the South Durham Miners' Association, on Thursday received a telegram from Mr. George Potts, Auckland Park, one of the men's leaders in the strike at Messrs. Bolckow, Vaughan, and Co.'s Westerton Colliery, South Durham, intimating that the men agreed to resume work, leaving the Westerton Colliery difficulty in the hands of the Miners' Association Executive Committee. The intimidation was wired to Mr. Robinson, manager, who replied that each collier was required to make separate application to resume work, and no cognisance would be taken of the body known as the Joint Board. The strike consequently continues.

## THE INVENTORIES EXHIBITION.

Stand 145.—Morris and Wood, West Stockwith, Gainsborough.—(1.) Patent Mill for grinding quartz and all other hard substances. (2.) Model Patent Cast-iron Attractionless Pulley. (3.) Model Patent Railway Truck Coupling.

Stand 112.—John Mills and Sons, Fifth-street Brass Works, Newcastle-on-Tyne. (1.) Miners' Safety-lamps.—(2.) Marsaut Patent Safety-lamps, with and without Ryders Patent Locks.

Stand 161.—Joseph Foster and Sons, mining engineers, Bow-lane Ironworks, Preston, Lancashire. Patentees and manufacturers of Rock-drills, Tunnelling Carriages, Air Compressors, and other mining machinery. The Foster Percussive Rock-drill, simple and durable, easy to manage, and to keep in order. All the parts made of steel and phosphor-bronze, and all interchangeable, only three working parts, the piston, the valve, and the screw, strikes 500 blows per minute, giving a powerful dead blow, the full pressure of air being on the piston until the blow is struck, the twist and feed motion combined and worked from the feed screw.

The Beaumont Percussive Rock-drill. Suitable for heavy and confined mining work, shaft sinking, tunnelling, quarrying, &c. Main features.—Automatic twist motion of strong construction and reliable action, automatic feed motion, feeds only according to the speed of drilling, and requires no attention when started, strikes a powerful blow, the full pressure of the air being on the piston until the blow is struck. No tappet motions of any kind, strikes 300 to 400 blows per minute. Simple valve motion worked by air, no connections of any kind. Work done by the Beaumont drill—Cymmer Tunnel, Keighley Tunnel, Halkyn Mines Drainage Tunnel, Argentine Mines, France, Carn Brea, Cornwall, Dortmund Mine, Westphalia, Pochin Pits, and other works.

Tunnelling Carriage for driving headings, &c., carrying four large Beaumont drills. The machine is of the strongest construction, suitable for railways or other headings requiring the highest possible speed. The centre pillar, carrying the cross arms is so constructed as to enable the drills to be worked in every possible position. The cross-arms are fitted with strong claws screws, for jacking against the sides of the headings, and the drills are secured to them by means of universal clamps. Carriages made to suit the size of heading and to carry one to six drills.

Air Compressors.—Vertical Air Compressors, single-acting cylinders, driven from separate engines. Horizontal Air Compressing Engines, with steam and air cylinders combined. Air compressors, engine and boiler combined, with high and low pressure steam and air cylinders, Beaumont and Greig's patent.

Stand 154.—The Electro-Amalgamator Company (Limited), Tower Chambers, Moorgate-street, E.C., exhibit an invention for extracting gold from its ore under the influence of electricity. The pulverised ore containing the gold is washed direct from the stamps over the simple and well-known form of amalgam-plate and riffle-table. An electric current is then to be maintained and applied to the copper plates and to the surface of the quicksilver in the riffles for keeping it bright and lively, and to prevent its becoming foul on the surface or covered with an oxide, and becoming sickened or floured. The quicksilver on the plates and in the riffles absorbs the gold more readily under the influence of electricity. By the use of this invention the production of gold is increased at a nominal cost for the electricity. There is a large field of usefulness for this and other gold saving appliances, and the peculiarity of this invention of electrifying the quicksilver and keeping it bright will give a better opportunity for saving much of the fine gold that has heretofore escaped through not being brought into contact with the mercury.

Stand 609.—The Vacuum Brake Company (Limited), 32, Queen Victoria-street, E.C.; engineer, Alfred L. Sacre, C.E., exhibit the Vacuum Automatic Continuous Brake, with universal coupling. By means of a small ejector placed upon the engine the air is drawn out of the main train pipe, and from the top and bottom sides of piston, through the flexible pipe and ball valve, so that in running a vacuum of 20 to 24 in. is maintained throughout the system. The brake is operated by a valve in connection with the main train pipe, which is opened by the driver or guard, allowing air to flow to the bottom side of piston, thereby applying the brakes, the top side and vacuum chamber maintaining the vacuum through the action of the ball valve, which closes immediately air is admitted to the train pipe. In the event of the train parting the Universal hose couplings will, without damage, become detached, and the brakes immediately apply themselves. To release the brakes, when the engine has been detached from the train, the ball valve, by means of a small wire cord placed on either side of the carriage, is opened, which admits air to the top side of the piston, thus restoring equilibrium on both sides of the piston, under which conditions the brakes fall off by gravity. The rings on piston, also hose pipe connections, and flexible pipe to cylinder, are made of the best rubber, and coated with a material which effectually resists oil and grease. The brake is simple, efficient, and durable, no parts exposed to friction, or requiring lubrication, and is not affected by frost and dust as much as some others. The advantages claimed for the Vacuum Automatic Brake are that it can be applied to a train of any number of carriages. It is automatic or self-applying in case of accidental separation of carriages, or damage to any of its parts. It is instantaneous in its action, and can be applied any number of times without exhausting its power. The operating power of the brake is the pressure of the atmosphere on the lower side of a piston against a more or less perfect vacuum on top side of the piston, which can be regulated to apply any force to the wheels, and can be controlled at will, and may be applied with any amount of pressure for retarding a train down an incline. Economy in the use of steam as a small ejector is capable of maintaining the vacuum. The brake is applied, regulated, and released by one handle. No pump or separate reservoir in engine required. As instance of the great use which is made of this "Vacuum Brake," it is being used by about 30 railway companies in Great Britain and Ireland, as also in India and the colonies, and a record of mileage done nearly 50,000,000 of miles for the year 1884. Truly a good record.

Stand 660.—Roe's Patent Automatic Coupling, exhibited by James Thorne Roe, Earlsfield Villas, Balham Park-road, London, S.W., for automatically coupling and uncoupling railway wagons, &c. In the event of a wagon fitted with the Roe coupling coming next to one not so fitted the Roe coupling can still be easily lifted over the hook on the opposite wagon from either side, without the shunter going between the wagons. It couples automatically with precision, at any difference in height of trucks, and will readily connect with the present hooks and chains now in use. The coupling can be prevented from coupling if required, and works equally well with long spring or short dead buffers, and can be made tight or loose as desired. These couplings can be fitted to the present draw-bar and hook without alteration, and the cost is consequently small. The coupling is simple and cannot easily get out of repair.

Stand 269.—Sissons and White, Hedon-road, Hull.—Telescope Steam Pile Driver. In this invention the ram is lifted by a tongue passing through the centre, and is drawn in and out by a lever, with rack and pinion. To the outer end of the lever a cord is attached, and on being drawn downwards the tongue is shot into the open link of the pitched chain in its upward motion. The tongue is withdrawn by the other end of the lever striking against a staple fixed in front of the guide pieces, and the ram thus released then falls on the pile. The ram usually falls about 12 times in a minute with a 6 ft. lift. Telescope drivers are made by which piles can be driven in a trench or tideway down to a depth of 30 ft. below the stage on which the machinery stands, the ram driving quite down to the ground without using a "Dolly" to dispense with which is a great advantage. A large number of these excellent machines are used by the Admiralty and leading contractors.

Stand 166, Group II.—Robey and Co., Globe Works, Lincoln, exhibit a 12-horse power Improved Robey Winding-Engine and Locomotive Boiler combined, mounted on a patent wrought-iron tank foundation, specially adapted for export and for places where materials for foundations are difficult and expensive to obtain. This is a most ingenious arrangement as the tank not only serves as a base for the engine, thereby entirely dispensing with brickwork or masonry, but also serves as a packing case for its transport. The engine is specially designed for developing mining operations in new

districts where skilled labour for the erection and putting together of machinery is not obtainable. This class of engine will be found very useful, and specially adapted for the requirements of many of the gold mining and other companies in Australia, Africa, and other places for quick winding and developing mines to good depths before going to the expense of more extensive works.

Stand 433, Group IV.—Robey and Co. have a further exhibit of their excellent machinery.—1. Semi-fixed compound engine, specially adapted for electric lighting, and fitted with Richardson's patent electric regulator for maintaining either a constant current or a constant electromotive force, irrespective of variations in boiler pressure or work done.—2. 12-horse power horizontal fixed engine, fitted with Proell-Corliss apparatus, forming a complete automatic expansion gear, giving a range of cut-off from  $\frac{1}{8}$ ths to 1-16th of the stroke, and securing the most economical distribution of steam. The name of Robey has become so famous in all parts of the world for the excellence of its machinery that nothing need be added to the announcement of engines of the various classes and descriptions, as made by this eminent firm of world-wide fame, to guarantee the excellence of the work. Whether for mining work, farm work, or manufacturing power throughout the colonies, as in other parts of the world, in buying an engine the fact of it being one of Robey's make stamps it with a guarantee which assures the buyer he is getting an article he can fully depend on. The Robey compound engine at this stand develops 30-horse power with a consumption of coal not exceeding 2 lbs. per horse-power per hour, and is a splendid specimen of the excellence of the work turned out at the Globe Works, at Lincoln.

Stand 545.—Proctor's Patent Mechanical Stoker and Moveable Fire Bars. Exhibited by James Proctor, Hamerton-street Ironworks, Burnley. This stoker consists of a lantern wheel, spring, and shovel, the wheel having an easier motion than the tappet. The box being an open one large coal can be used. By the use of the ram as a feeder the supply can be regulated with the greatest nicety, being able to vary the supply of coals from 50 to 400 indicated horse-power per boiler. An important advantage is obtained by this method of supplying coal in only having one hopper for two fires, or one boiler. The duty of the stoker is to place the coal evenly on the fire in such quantities only as the air can consume. This is done by the use of the lantern wheel, which having three different lifts or throws varies the tension upon the spring; the largest lift giving the most tension throws the coal to the back, the next to the middle, and the least to the front of the fire, thereby ensuring a uniform covering and regular supply of coal to the fire. It is here that the special features in this stoker present themselves—viz., in its originality, adaptability, and positiveness of its action, for after the shovel has received its charges of coal it will throw it where it is desired with greater accuracy than can be done by hand, and it will be seen by a conformation of wheel and shovel it can be adapted to any kind of furnace, the wheel being made larger and the shovel broader as the furnace increases in length and breadth. Little power is required to drive these stokers. A  $\frac{1}{2}$ -in. band will drive three of them with all the necessary gear attached. The advantages of the mechanical stoker are—an avoidance of the smoke nuisance, a more constant pressure of steam, hence a more regular speed of the engine. The boiler can be fired by hand with the stoker on as well as without. It has a neat appearance, and is ornamental.

TOLIMA MINING COMPANY.—Advices received by the mail of June 26, from their mines, of which the following is an abstract:—

Frias January returns.....	\$9,110-0
February cost.....	\$5,845-4
Frias January cost.....	\$10,290-6
February cost.....	\$17,136-2
Loss for January and February.....	\$5,026-2
Frias March returns.....	\$4,137-4
cost.....	7,278-7
Loss for March.....	3,173-3
Total loss for three months.....	\$11,193-5

Equal in sterling to 1856, 12s. 1d.

The advices to hand this day bring intelligence from the mine up to April 19, thus being but one month in arrears of the reports, which under ordinary circumstances should have been received. The returns cover the works at the mine during the three months of January, February, and March. One very satisfactory feature in these advices is that beyond the loss by actual or apprehended military impressment of some members of the native staff, the company has suffered no molestation from either of the belligerent parties. The state of the country, however, has entirely stopped the transport of mineral from the mine, or the arrival of stores.

On this latter point the superintendent observes on 19th March—Frias Works: We continue our surface and underground operations with regularity, and with a strength proportioned to our resources, and to the most necessary requirements of the establishment, and this policy will be continued. Fortunately we were fairly well provided in anticipation with a supply of ready cash and with a good stock of powder, and candles, &c., otherwise our situation would have been a grave one before this time. Notwithstanding these favourable and reassuring facts the output has been reduced, not only from the adoption of the precautionary measures above alluded to, and the detention of the staff already explained, but from the circumstances that, owing to the necessity of repairing the foundation of the water-wheel the pumps had been stopped in the middle of January for about 14 days, in consequence of which all the lower workings of the mine were flooded, and it was not till the middle of March that the 80 ft. levels were freed, and that operations could be again resumed throughout the mine. The January, February, and March invoices do not therefore represent the capacity of the mine for that period, and naturally show a loss. The superintendent, in his latest communication, dated 19th April, speaks in the following terms of the general position of the mine:—

With the exception of the time lost during the Easter holidays, work has gone on in the limited number of stations in operation with regularity. The principal changes to note up to the date of writing are a slight improvement in the 20 west main level, in the end of which a small branch of rich mineral has been: in within the past few days; this, being in practically new ground, is important. An improvement in yield of ore in the drift driving east from No. 1 winze at a depth of 8 fms. under the 20. An improvement in the eastern portion of the 20 back slopes, and an improving vein in the 50 west, the end of which during the past week has shown some fine streaks of mineral, galena, and blende carrying red silver. This ore has every characteristic of that we are working on in the 20, and we think we are surely now in the confines of a good deposit in the 50. We are anxiously hoping this may be so, and all the indications seem to confirm this opinion I have so often expressed, that it is merely a question of driving the requisite distance westward to ensure a productive and remunerative lode in the deep western section of the mine.

Frias Underground Report: In the 80 Fathom Level east end the lode here is 5 ft. wide, composed chiefly of schist. On the footwall there is a leader of quartz, containing here and there spots of pyrites.

0 Back Slopes East.—The mineral is chiefly pyrites, disseminated in strings over the whole face of the workings, and the yield is estimated at 20 cwt. of 200 cwt. mineral per fathom.

80 Fathom Level, Bottom Slope East.—The average yield here is 10 cwt. per fathom of mineral, worth 160 cwt. per ton.

80 Fathom Level Bananza Slope East yields 15 to 20 cwt. of 150 cwt. of mineral per fathom; the string of mineral varies from 2 to 5 ft. wide, and contains rather more pyrites and less blende than formerly.

60 Fathom West End.—This end until the last week has been very poor, but now there is a vein of quartz on the hanging wall, 15 in. wide, which at first only showed mere spots of blende, but during the last day or two has become much more mineralised, and is at the present moment worth about 7 cwt. per ton. The mineral is blende containing also galena and red silver ore has been seen in the same. The remainder of the lode some 30 in. is composed of schist. The ground is hard, and rather unfavourable for working.

20 ft. West End.—This end is poor, and composed of schist with strings of quartz, with only spots of blende and galena to be seen at times. The lode is about 4 ft. in width.

20 ft. Level Drive from the Bottom East of No. 1 Winze.—The mineral in this end pinched considerably during the first part of the month until there were only some 4 in. in the sole, and about 1 in. in the roof. Since that time it has improved greatly, and there is now on the footwall a branch of mineral 10 in. wide, so that the present end is worth about 3 tons to the fathom. The mineral is blende and galena. Red silver ore has been seen in specks. Near the hanging-wall there is a small string of mineral. The ground continues pretty favourable for driving.

20 ft. Back Slopes.—In the easternmost part of these slopes there has been considerable improvement from being worth only about 20 cwt. per fathom to 50 cwt. per fathom as it is now. The quality of the mineral remains the same, however.

Sahandija Mine, Engine-Shaft.—The lode has been from 15 in. to 2 ft. wide, and has improved as regards the mineral it carries. There is now a band of quartz from 4 to 6 in. wide, and it contains, besides blende and galena, a good proportion of red silver ore, and antimonial silver ore. The yield, at present, would be some 3 cwt. of 600 cwt. ore per fathom, but the average for the whole month is about 2 cwt. of 400 cwt. mineral.

12 West End.—The lode is 15 in. wide, and on the hanging-wall (south side), there are 6 in. of quartz, containing spots of blende and pyrites. The rock has become harder for driving.

No. 2 Adit.—This, which it is intended to communicate with the 12 east level, contains in the forebore two strings of quartz, 1 in. wide each, about 2 ft. from each other, but no signs of mineral.

12 East End.—The end is rather hard, but on account of its jointiness is not very unfavourable for driving. On the hanging-wall (north side), there is a small string of quartz, 2 in. wide, in which spots of blende have been seen.

Stopping below 12 ft. East Level.—25 ft. of ground have been taken away from the bottom of this level, west of the winze, in the same. It yielded about 3 cwt. of 350 cwt. mineral to the fathom.

## QUARTZ CRUSHINGS, AND YIELDS OF GOLD IN VICTORIA.

The following summary shows an average yield of gold from certain parcels of quartz crushed and pyrites and blanketings operated on during the quarter ending December 31, 1884:—

Mining districts.	Quantity crushed.	Total yield of gold from quartz, &c.	Average yield per ton.
Quartz.	Tons. cwt. gr.	Ozs. dwt. grs.	Ozs. dwt. grs.
Ballarat.....	67,239 0 0	23,777 16 2	0 7 1-74
Beechworth.....	12,875 10 0	8,103 17 6	0 12 14-11
Sandhurst.....	86,704 0 0	49,331 4 3	0 11 9-1
Maryborough.....	10,326 2 0	4,282 18 23	0 8 7-08
Castlemaine.....	22,722 0 0	13,080 17 8	0 11 12-33
Ararat.....	12,470 0 0	2,961 12 1	0 4 17-59
Gippsland.....	11,355 0 0	13,083 13 0	1 3 1-07

Totals.....	223,691 12 0	114,621 18 19	0 10 5-96
Pyrites and blanketings operated on:—			
Ballarat.....	376 15 0	767 4 12	2 0 17-48
Beechworth.....	253 0 0	278 0 0	1 1 23-43
Sandhurst.....	597 0 0	1397 11 0	2 6 19-65
Castlemaine.....	169 0 0	339 1 12	2 0 5-05

Totals.....	1395 15 0	2781 17 0	1 19 20-69
-------------	-----------	-----------	------------

It will be seen that the percentage of pyrites to the bulk quantity of quartz crushed is very small, the bulk of the quartz from Victorian mines being but slightly charged with pyrites.

Statement of average yields of the principal mines in the Sandhurst mining district whose crushings during the quarter ending 31st December amounted to over 1000 tons:—

Company.	Ref.	Tons cwt. gr.	Total gold.	Average.
New Chum Railway.....	New Chum.....	3,454 0 0	3,581 13 0	1 0 17-75
Eureka Extended.....	ditto.....	2,309 0 0	1,787 0 0	0 15 11-48
N. C. and Victoria.....	ditto.....	3,909 0 0	2,554 5 7	0 13 1-64
N. C. United.....	ditto.....	2,550 0 0	2,113 5 0	0 15 13-78
Garribaldi.....	ditto.....	1,950 0 0	702 11 0	0 7 4-92
Johnson's Reef Claim.....	ditto.....	3,358 0 0	1,162 5 0	0 6 22-13
Johnson's Reef G. M.....	ditto.....	1,201 0 0	845 11 0	0 13 5-37
Hercules & Energetic.....	ditto.....	4,104 0 0	1,443 0 6	0 7 0-77
Garden Gully United.....	Garden Gully.....	3,816 0 0	1,823 3 0	0 9 13-57
Carlisle.....	ditto.....	2,380 0 0	402 2 0	0 3 9-99

Company.	Ref.	Tons cwt. gr.	Total gold.	Average.
United Devonshire.....	Devonshire.....	4,000 0 0	8,142 2 0	2 0 17-05
South St. Mungo.....	ditto.....	4,486 0 0	2,942 19 0	0 13 2-19
Lady Barkly.....	ditto.....	4,003 0 0	1,841 16 0	0 9 4-85
Phoenix.....	St. Mungo and Devonshire.....	1,998 0 0	404 4 0	0 4 1-21
Sadowa.....	ditto.....	3,463 0 0	1,185 18 0	0 6 20-37
St. Mungo.....	ditto.....	3,836 0 0	1,255 2 0	0 6 13-05
Ellenborough.....	ditto.....	1,530 0 0	458 4 0	0 5 21-27
Rose of Denmark.....	Johnson's.....	1,607 0 0	938 16 0	0 12 6-75
No. 20 Tribute.....	ditto.....	1,157 0 0	626 6 0	0 10 19-63
Frederick the Great.....	ditto.....	4,630 0 0	837 4 6	0 3 21-78
Bruhn's Tribute.....	ditto.....	3,987 0 0	2,119 13 0	0 10 15-21

Statement showing average yield of gold from certain parcels of alluvial wash dirt puddled or sluiced during the quarter in quantities over 1000 tons:—

Where obtained.	Wash dirt puddled.	Yield of gold.	Average per ton.
	Tons cwt. gr.	Ozs. dwt. gr.	Ozs. dwt. gr.
Southern division—Break O'Day.....	7,405 0 0	187 13 8	0 2 16-12
Smythesdale division—Haddon.....	27,645 0 0	2,148 1 0	0 1 13-29
Clunes division—Clunes.....	22,654 0 0	1,488 19 0	0 1 7-54

BEECHWORTH MINING DISTRICT.

Indigo division—Chiltern.....	47,700 0 0	2,343 12 20	0 0 22-57
Buckland division—By Chinese.....	8,870 0 0	658 13 0	0 1 8-03

MARYBOROUGH MINING DISTRICT.

Maryborough division—Timor.....	15,250 0 0	1,911 9 5	0 2 13-48
Majorca division—Majorca.....	16,550 0 0	2,768 1 12	0 3 8-28
Amherst division—Mount Grenock.....	3,402 0 0	290 17 20	0 1 17-04
Avoca division—Hornbush.....	9,920 0 0	2,144 0 0	0 4 7-78
Dunolly division—Burnt Creek.....	7,000 0 0	757 2 15	0 2 3-91

CASTLEMAINE MINING DISTRICT.

Fryers Creek division.....	21,780 0 0	357 15 0	0 0 7-78
Taradale division.....	59,155 0 0	2, 74 11 8	0 1 0-13
Taradale division, Taradale.....	5,717 0 0	578 14 0	0 2 0-59
St. Andrew's division—St. Andrew's.....	8,650 0 0	710 12 0	0 1 15-43

CRESWICK DIVISION, BALLARAT DISTRICT.

Name of company.	Yield of gold.	Divs. paid.	Royalties.
	Oz. dwt. gr.		
Madame Berry Co., Spring Hill.....	10,375 8 0	\$22,500	\$3277 8 0
Lone Hand Comp ny.....	8,255 8 0	18,000	2557 5 6
Histori West Company.....	4,333 13 0	9,500	1,332 12 0
Loughlin Company.....	1,755 5 0	2,700	6 6 3 11
Lord Harry Company.....	80 0 0	—	Not yet paid
Davis's Junction Co.....	528 6 0	—	95 17 3
Ristori Company.....	—	900	146 12 1*
New Australasian Co., Red Streak.....	2,892 5 0	4,500	Crown lands
North Australasian Co., ..	611 12 0	—	—
Bell's Freehold.....	405 14 0	—	Worked by owner
Heppburn Rock Lead, Ballarook.....	547 18 0	—	Not yet paid
Approximate small claims.....	450 0 0	—	—

Total..... 30,175 19 0.....£58,100.....£28015 17 10

\* Balance due on previous quarter's gold.

The Creswick alluvial mines have paid nearly one-half the entire produce of gold in dividends.

## COPPER ORES.

Sampled June 3, and sold at the Royal Hotel, Truro, June 18.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols. 109.....	£1 1 0		South Caradon.....	63	£3 6 8
ditto.....	103	1 1 6	ditto.....	25	10 0 6
ditto.....	102	1 1 0	ditto.....	17	3 2 6
ditto.....	101	1 1 6	Holmbush.....	102	1 4 6
ditto.....	89	1 1 0	ditto.....	41	1 0 0
ditto.....	87	0 19 6	ditto.....	42	2 6 2
ditto.....	64	0 19 6	ditto.....	62	3 17 6
ditto.....	50	3 6 6	Glasgow Caradon.....	68	3 7 0
ditto.....	45	4 9 0	ditto.....	62	3 17 6
Wheal Crebor.....	108	3 0 0	Gunnislake (Olliters).....	77	3 9 8
ditto.....	104	2 9 0	ditto.....	49	4 1 6
ditto.....	103	2 12 6	Bedford United.....	52	2 19 8
ditto.....	98	2 10 0	ditto.....	42	2 19 8
ditto.....	95	2 1 6	ditto.....	28	1 0 0
South Caradon.....	80	0 9 0	Calstock & Danescombe.....	106	1 0 0
ditto.....	76	2 15 0	East Caradon.....	14	3 9 8
ditto.....	65	2 10 0	ditto.....	6	4 12 8
ditto.....	64	2 7 0	Emily Copper Mine.....	15	4 5 8

TOTAL PRODUCE.

Devon Gt. Consols.750 .....	£1058	2	6	Gunnislake (Chit.)..126 .....	£464	2	8
Wheal Crebor.....504 .....	1280	6	0	Bedford United.....122 .....	305	6	0
South Caradon.....390 .....	1071	2	6	Calstock and Danc-			
Holmbush.....251 .....	301	4	0	combe.....106 .....	31	16	6
Glasgow Caradon.....130 .....	468	1	0	East Caradon.....20 .....	76	1	0
Emily Copper Mine .....				15 .....	264	2	6

## Provincial Stock and Share Markets.

**CORNISH MINING SHARE MARKET.**—Mr. S. J. DAVEY, mine share-dealer, Redruth, writes under date June 25:—Our market has been very slow all the week, and prices have not altered very much. Very little doing. Tin standards were reduced 2s on Monday. Following are prices:—Blue Hills, 15s. to 17s. 6d.; Carn Brea, 3½ to 4; Cook's Kitchen, 9 to 9½; Dolcoath, 7½ to 8; East Blue Hills, 1½ to 2; East Pool, 4½ to 4¾; Killfret, 14s. to 15s.; New Cook's Kitchen, 3½ to 4; New Kitty, 3½ to 4; Pen-an-drea, 3½ to 4; South Condurow, 7½ to 8; South Crofty, 3½ to 4; South Wheal Frances, 2½ to 3; Tincroft, 7½ to 8; West Basset, 2½ to 3; West Frances, 8 to 8½; West Kitty, 7 to 7½; West Polbreen, 3½ to 4; West Wheal Seton, 5½ to 6; Wheal Agar, 18½ to 19; Wheal Basset, 9½ to 10; Wheal Grenville, 10½ to 11; Wheal Kitty (St. Agnes), 3½ to 4; Trevaunance, 2 to 2½; Polbreen, 2 to 2½.

—Mr. M. W. BAWDEN, Liskeard, writes under date June 25:—The mining market presents a steady appearance, and prices are much the same with but little change to notice, business mostly confined to several of the low price progressive mines. Closing quotations subjoined:—Bedford United, 5 to 5½; Blue Hills, 1½ to 1¾; Carn Brea, 3½ to 4; Cook's Kitchen, 9 to 9½; Dolcoath, 7½ to 8; East Blue Hills, 1½ to 1¾; East Pool, 4½ to 4¾; Killfret, 14s. to 15s.; New Cook's Kitchen, 3½ to 4; New Kitty, 3½ to 4; Pen-an-drea, 3½ to 4; South Condurow, 7½ to 8; South Crofty, 3½ to 4; South Wheal Frances, 2½ to 3; Tincroft, 7½ to 8; West Basset, 2½ to 3; West Frances, 8 to 8½; West Kitty, 7 to 7½; West Polbreen, 3½ to 4; West Wheal Seton, 5½ to 6; Wheal Agar, 18½ to 19; Wheal Basset, 9½ to 10; Wheal Grenville, 10½ to 11; Wheal Kitty (St. Agnes), 3½ to 4; Trevaunance, 2 to 2½; Polbreen, 2 to 2½.

—Messrs. ABBOTT and WICKETT, stock and sharebrokers, Redruth, write under date June 25:—There has been but little animation in the mining market during the last week, which has been further depressed by the action of the smelters in reducing the tin standards. The chief business has been in Dolcoath, West Kitty, West Frances, and Killfret. Blue Hills and Blue Hills Enquired for. Closing quotations herewith:—Blue Hills, 15s. to 17s. 6d.; Carn Brea, 3½ to 4; Cook's Kitchen, 9 to 9½; Dolcoath, 7½ to 8; East Blue Hills, 1½ to 1¾; East Pool, 4½ to 4¾; Killfret, 14s. to 15s.; New Cook's Kitchen, 3½ to 4; New Kitty, 3½ to 4; Pen-an-drea, 3½ to 4; South Condurow, 7½ to 8; South Crofty, 3½ to 4; South Wheal Frances, 2½ to 3; Tincroft, 7½ to 8; West Basset, 2½ to 3; West Frances, 8 to 8½; West Kitty, 7 to 7½; West Polbreen, 3½ to 4; West Wheal Seton, 5½ to 6; Wheal Agar, 18½ to 19; Wheal Basset, 9½ to 10; Wheal Grenville, 10½ to 11; Wheal Kitty (St. Agnes), 3½ to 4; Trevaunance, 2 to 2½; Polbreen, 2 to 2½.

—Mr. JOHN CARTER, mine sharedealer, Camborne, writes under date June 25:—The Cornish share market remains quiet but steady, and the fall of 2s. in tin standards on Monday caused no alteration to notice in quotations, which close as follows:—Blue Hills, 15s. to 17s. 6d.; Carn Brea, 3½ to 4; Cook's Kitchen, 9 to 9½; Dolcoath, 7½ to 8; East Blue Hills, 1½ to 1¾; East Pool, 4½ to 4¾; Killfret, 14s. to 15s.; New Cook's Kitchen, 3½ to 4; New Kitty, 3½ to 4; Pen-an-drea, 3½ to 4; South Condurow, 7½ to 8; South Crofty, 3½ to 4; South Wheal Frances, 2½ to 3; Tincroft, 7½ to 8; West Basset, 2½ to 3; West Frances, 8 to 8½; West Kitty, 7 to 7½; West Polbreen, 3½ to 4; West Wheal Seton, 5½ to 6; Wheal Agar, 18½ to 19; Wheal Basset, 9½ to 10; Wheal Grenville, 10½ to 11; Wheal Kitty (St. Agnes), 3½ to 4; Trevaunance, 2 to 2½; Polbreen, 2 to 2½.

**MANCHESTER.**—Messrs. JOSEPH R. and W. P. BAINES, stock and share brokers, Queen's Chambers, Market-street, write under date June 25:—There has been very little animation in the share markets during the past week, the approach of and commencement of the fortnightly settlement, as usual, interfering with fresh business. Prices have kept fairly maintained, excepting in one or two instances where the prospects of the working of the half year are predicted as bad, and in some cases, foremost amongst which are the southern lines, a decided recovery has taken place during the last day or two, though the actual cause it is hard to find, the advance being, it appears, more traceable to some large operations on the part of the public. The rise in Brighton Deferred began on the publication of their May working statement; but beyond the fact that they show some saving in expenses, there does not yet appear anything to encourage the hope of a bona fide enhancement of value. The political deadlock is at an end, and the new Ministry duly installed; but this has not made any impression on values or in the general tone of the markets. Consols are ½ better on the week, and India Four per Cent. ¼. Home Corporation Stocks and Debentures keep very firm at full rates, and some advance is reported in Manchester Four per Cent., Leeds Four per Cent. and Liverpool Three-and-a-half per Cent. Colonial Government Bonds are unchanged in prices, with but few lots changing hands. Foreign Bonds and loans though not producing much business here, have received some attention to quotations, the changes being pretty evenly divided between higher and lower. Argentines have lost some of their recent advance, the Hard Dollar Bonds having fallen away the notably most—viz., 4 to 5; whilst the Public Works Bonds mark only 1 lower. Mexican Three per Cent. (1881) are ½, Portuguese ½, and one or two others ¼ down, against which the following are higher:—Egyptian United, ½ to ¾; ditto Preference, ¾; Spanish, ¾ to 1; Italian Five per Cent. (61), ¾; and Russian Five per Cent. (1877), ¾. Egyptian Daira Sanieh, after having shown rather better, have settled back to figures ruling a week ago.

BANKS have changed hands to a fair extent, prices realised being about what have recently been obtained. Changes in quotations are few and unimportant.

**INSURANCE** shares with very little doing mark a few alterations in values, but they are, with the exception of a fall of ¼ in Liverpool and London and Globe, hardly worth mentioning.

**COAL, IRON, &c., AND MINING.**—This market receives no support, and again the balance of change is unfavourable. On the side of advance, however, Nant-y-Glo and Blaenau Preferred mark a rise of 1; A. Knowles and Sons, ½ to ¾, and Ebbw Vale, ½. Lower: Pelsall Coal, &c., 1; Bolckow's, fully-paid, ¼ to ½ (12½ paid, buyers' price is down ¾; but sellers' is unaltered); Rio Tinto, ¼; Sheepbridge Coal, &c., ¼; and Canada Copper, &c., 6d. to 1s.—COTTON SPINNING, &c., SHARES.—No actual change, but tone better on prospects of improvement of things to accrue from short time.—TELEGRAPH quiet and unchanged, save in Anglos, the Ordinary of which are rather better, and Preference easier.—TELEPHONES.—Liverpool and Cheshires, 3 to 5; United, ¾ down.—MISCELLANEOUS.—Very few transactions reported—Suez Canal, ¾, and Milner's Safe, ¼ higher.

**RAILWAY.**—Notwithstanding the abundance of money seeking employment, both in the hands of private capitalists and with bankers, evidences of which are not few, prices for rails show weakness, excepting in Southern lines, in which considerable manipulation is going on in consequence of the renewed attempt at fusion. Metropolitan are not maintained, and Districts, being pressed for sale, have suffered in value. The Grand Trunk of Canada traffic is again a large decrease—total, 13,826½—but price, contrary to calculation, do not follow. American there is some improvement, but trade reports by no means warrant the better figures that have been marked in Milwaukee, New York Central, Illinois, and Pennsylvania. Mexican rails are suffering from the various unfavourable reports respecting the intentions of the Government; but, as their promises do not come to anything, the result of their promises cannot be counted upon as likely to help the railway stock. The traffic this week is 400½ decrease.

**NEWCASTLE-ON-TYNE.**—Mr. S. N. CHALLONER, stock and share broker, 62, Great-street, writes under date June 25:—Barrow Steel Ordinary, 6 sellers; ditto Preference, 8½ sellers; Bede Metal, 7 sellers; Bolckow (fully paid), 14½ to 14¾; 12½ paid, 7½ to 7¾; and Five per Cent. Preference, 17½ to 17¾. C. Cammell and Co., 75½ to 76; Consort Iron, 17½ to 18; Consort Spanish Ore, 4½ to 4¾; Darlington Iron Ordinary, 24s. to 26s.; ditto Seven per Cent. Preference, 4½ to 4¾; Earle's Shipbuilding, 13½ to 14; Ebbw Vale, 2½ to 3; John Abbot, 4s. to 4½; John Brown, 63 to 63½; Palmer, A., 22½ to 23; B., 14½ to 15; Pelsall Coal, 4 to 5; River Tyne Dry Dock, ¼ dis. to par; Sir W. G. Armstrong, 124 to 127; Teeside Iron Ordinary, 5s. to 7s. 6d.; ditto Preference, 7s. to 7s. 6d.; Tharley Tyne Boiler, 4 to 5; Tyne Forge, 3½ to 4½; West Cumberland Iron, 3½ to 4; Moss Bay, 10½ to 11; Mason and Barry, 8½ to 9½; Rio Tinto, 10½ to 10¾; Tharley, 9s. to 9s. 6d.; Hartlepool Gas and Water, A., 3½ to 4; B., 3 to 3½; C., 7½ to 7¾; D., 7½ to 7¾; E., 7½ to 7¾; F., 7½ to 7¾; G., 7½ to 7¾; H., 7½ to 7¾; I., 7½ to 7¾; J., 7½ to 7¾; K., 7½ to 7¾; L., 7½ to 7¾; M., 7½ to 7¾; N., 7½ to 7¾; O., 7½ to 7¾; P., 7½ to 7¾; Q., 7½ to 7¾; R., 7½ to 7¾; S., 7½ to 7¾; T., 7½ to 7¾; U., 7½ to 7¾; V., 7½ to 7¾; W., 7½ to 7¾; X., 7½ to 7¾; Y., 7½ to 7¾; Z., 7½ to 7¾.

## SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

**STIRLING.**—Mr. J. GRANT MACLEAN, stockbroker and ironbroker (June 25), writes:—During the past week the markets have been idle owing to the unfavourable state of trade. The Money Market remains easy. The fortnightly settlement is in progress, and transactions will be for new account July 15.

In shares of coal, iron, and steel companies the principal alteration is an improvement in Marbellas to 48s. 6d., Ball's Iron 6s. to 8s., Ebbw Vale 7s. 6d., and West Cumberland 6s. to 7s.

In shares of foreign copper concerns prices are easier, especially for Capes and Rio Tinto. There is steady at 98s. 6d. to 100s.

In shares of home mines there has been less business doing. The report of the York and Lancaster United is satisfactory. The mines have been put in order, and operations for getting ore commenced. Should the ground to be worked prove as good as expected the shareholders will soon receive fair returns. Anderson, 5s. to 7s. 6d.; Devon Friendship, 6d. to 1s.; Ectons, 17s. 6d. to 20s.; East Blue Hills, 30s. to 25s.; East Wheal Rose, 3s. to 4s.; Frongoch, 2s. 6d. to 3s.; Goginan, 1s. 3d.; Killfret, 18s. to 20s.; Marle Valley, 2s. 6d. to 3s.; New Cook's Kitchen, 1s. 7d. to 2s.; Old Shepherd, 4s. to 5s.; Par Tin, 15s. to 17s. 6d.; Red Rock, 1s. 3d.; Standard Lead, 17s. 6d. to 21s. 6d.; West Devons, 1s. 3d.; Wheal Castle, 1s. 3d.; and Wheal Kitty, 10s. to 15s.

In shares of gold and silver mines there has been more business doing. Montanans have improved from 25s. 6d. to 30s. 6d., on the announced redemption of their debentures. Orita is now working with two monitors, and advices of results are expected soon. Balkis are easier; cable advices have been received of a gold remittance. From the Graskop No. 3 the reports are still good. Confidence is felt that they are now doing very well, and are many months will pay large dividends. Trojan shares wanted. Oromians are 15s. to 15s. Indian Comedians, 2s. to 4s.; Robinson, 2s. to 3s.; Kimberley Central, 6s.; Mysore Reef, 1s. 3d.; Oscar, 10s. to 12s.; and West Callao, 2s. to 3s.

In shares of miscellaneous companies prices are steady. Lanark Oil shares have declined, while Midlothians have improved to 43s. Home Mines Trust, 12s. 6d. to 13s. 6d.; Lawes' Chemicals, 4 to 4½; and Nobel's Explosives, 16½ to 15½.

**EDINBURGH.**—Messrs. THOS. MILLER and SONS, stock and share brokers, Princes-street, write under date June 24:—The market for railway ordinary stocks has been steady, but the amount of stocks changing hands has been small. Preference debentures and guaranteed stock have been bringing higher quotations. In banks, Bank of Scotland has changed from 316 to 317½. British Linen from 312 cum. to 307 ex dividend, Royal from 211½ to 212, Union from 21 to 21 5-16th. Scottish American Mortgage shares have fallen from 58s. to 53s. 6d. Prairie Cattle shares from 5½ to 5¾. The price of Edinburgh Gas shares has advanced to 52 ex, the bonus of 6½ 5s. per share paid to the holders last week. West Lothian Oil shares from 7 5-16 to 7 9-16. In insurance shares, Mercantiles have been in some demand and have improved from 28½ to 29½.

## Law Intelligence.

CHANCERY DIVISION.—FRIDAY, JUNE 26.  
(Before Sir JAMES BACON.)

THE MARQUIS OF LONDONDERRY V. RUSSELL.

Mr. Horton Smith, Q.C., and Mr. Medd, moved on behalf of the plaintiff to restrain the defendant from announcing for sale, or selling, his own coal under the description of Londonderry W.E. coal. The plaintiff has offices in London at Nine Elms and Westminster for the sale of his coal, and alleged that the defendant, by using the description of Londonderry W.E. coal, induced the public to believe that they were purchasing the plaintiff's Wallsend coal.

Mr. LITTLETON CHUBB (Mr. Millar, Q.C., with him) said that the defendant had sold coal under the description of Londonderry W.E. coal for 24 years.

The VICE-CHANCELLOR said that the defendant had sold coal under the name of Londonderry W.E. coal since 1861, and he should not make any order on the motion. The motion would stand over until the trial of the action.

QUEEN'S BENCH DIVISION.—TUESDAY.  
DIVISIONAL COURT.

(Before Mr. Justice FIELD and Mr. Justice MAINSTY.)

COWLER V. THE MORESBY COAL COMPANY (LIMITED).

This was an application by way of an appeal on the part of the defendants to set aside the judgment of the learned Judge of the Whitehaven County Court and to enter judgment for the defendants. Mr. Mattinson appeared for the appellants and Mr. F. O. Crump for the respondent.

Mr. MATTINSON said the action was brought under the Employers' Liability Act, and tried before a judge and a jury, who found a verdict for the plaintiff for 50l. damages, and judgment was entered accordingly, subject to a special case, which raised four points, on any one of which the defendants contended that they were entitled to succeed. The defendants said that at the time of the accident the plaintiff was not a workman in their employ within the meaning of the Act. The accident in question took place on the morning of the 23rd of June, 1884, and upon the previous Saturday the plaintiff was dismissed by the defendant company. At the time of his dismissal certain wages were due to him in respect of his past work, and the defendants' foreman told him that he would not get his wages until he had brought out of the pit certain tools which belonged to the company, and it had been found as a fact that it was the custom of this pit not to pay the men the last wages due to them until they had returned the tools.

Mr. Justice FIELD: What foundation is there for that rule? Mr. MATTINSON did not know that there was much, and if that view were taken so much the better for his argument. On the following Monday morning the plaintiff went down the pit with another man who had been dismissed, named McNeil, not for the purpose of working, but of getting these tools, and he submitted that he was not there as a servant, but as a licensee performing an act which the company had authorised in order to get his wages.

Mr. Justice FIELD: It was still part of his duty as servant to go down and fetch the tools.

Mr. MATTINSON said his point was that on the Saturday afternoon he ceased to be their servant. He was not bound to bring up the tools at that particular time in order to get his wages. Suppose a man had a coachman and dismissed him, but said he would not pay him his wages until he had produced certain articles, and appoints another coachman in his place. At the end of a few days the old coachman came on his late master's premises to look for the missing articles in order to get his wages, and while doing so he was injured; it could hardly be contended that he was a servant within the meaning of the Act.

Mr. Justice MAINSTY: It is admitted that the plaintiff had to bring the tools up before receiving his wages, and that he did not do so before the Monday. Does not that extend his service for that particular employment?

Mr. MATTINSON thought not, as he was not obliged to bring the tools up at any particular time.

Mr. Justice FIELD: Yes; within a reasonable time.

Mr. MATTINSON: Supposing on the Monday morning he had gone into the service of another colliery proprietor, and did not think it convenient to go down the pit until the following Saturday?

Mr. Justice MAINSTY: It is found that he went down the pit on the Monday in accordance with the order received from the manager.

Mr. MATTINSON said that was his first point. The next was that there was no evidence to go to the jury of any negligence on the part of the defendants. It was found that this Monday (the 23rd of June) was a day upon which the actual hewing and cutting the coals was suspended, and that there was only a limited number of men, called shaftmen, doing repairs, &c., and a notice to that effect was fixed up at the entrance to the pit. A fireman of the name of Rundle was appointed on that day to examine and report as to the safety of all parts of the pit in which work was going to be done. Now, this unfortunate man went down the pit in the company of McNeil, who had also been dismissed, and a gang of shaftmen who were going to work, and when he got to the bottom of the shaft went along the main travelling way for about a mile and turned off to some workings, to the place where his tools were when the accident took place. The question was whether there was negligence on the part of the defendants in not ascertaining the safety of the part of the mine where tools were.

Mr. Justice MAINSTY: It is found as a fact that he was obliged to go through this working in order to get the tools. If the defendants order him to go to this place, is it not to follow that they must inspect the place in order to ascertain whether or not it is safe for the man to go through this working?

Mr. MATTINSON said the duty of a mineowner had been regulated by statute, and his contention was that the defendants had performed their statutory obligations. He referred his Lordship to the Mines Regulation Act of 1872, 35 and 36 Victoria, chapter 76, clause 51, sub-section 2, under which a competent person had to be appointed to inspect with a safety-lamp "that part of the mine and the roadways leading thereto," and make a true report as to the safety of the same, once in 24 hours where two shifts were employed, and once in 12 hours where one shift was employed; and the workmen were not to go to work in such part unless the same and the roadways thereto were reported to be safe.

Mr. Justice FIELD: What do you say about the first clause that says an adequate amount of ventilation shall be produced in every mine until the working places shall be in a fit state for passing into them, so far as it is reasonably practicable?

Mr. MATTINSON: The Act says so far as it is reasonably practicable. There was no explanation how the accident happened more than that when the poor man left the main way and turned into the workings

probably the light which he was carrying ignited some gas. It was found in the case that the plaintiff and the other man met Rundle who made no statement to them that these workings were safe; and his contention was that the plaintiff was not entitled to go into any workings until an express statement had been made that they were safe. In short that there was a double duty on the part of the mineowner and the miner. The one to ascertain as far as he could that the mine was safe, the other not to enter until such had been ascertained—"The workman shall not go to work in such places until the same are stated to be safe," section 51, sub-section 2.

Mr. Justice FIELD: You have another point.

Mr. MATTINSON: With regard to the light it was true that he went in with a naked light. Then there was his last point, which was a purely technical one. The notice of the claim was addressed to Mr. William Fletcher, (the managing director), the Moresby Coal Company, near Whitehaven. Now, the defendants were a limited company, and the statute provided how notice was to be served on a company—"By delivering the same at or sending it by post by registered letter addressed to the office." (The Employers' Liability Act, 1880; 43 and 44 Victoria, chapter 42, section 7.)

Mr. Justice FIELD: This was addressed to the company. Mr. MATTINSON: It was merely descriptive of William Fletcher.

Mr. CRUMP read the last paragraph of the same section. Mr. Justice FIELD: Yes; I recollect it. Notice shall be not deemed invalid unless the Judge is of opinion that the defendant has been prejudiced by that inaccuracy.

Mr. MATTINSON: That section refers only to a defect in "the face" of the notice.

Their Lordships intimated that they should like to hear Mr. Crump on the point as to contributory negligence.

Mr. CRUMP said that with regard to the carrying of the naked light, it, no doubt, was partly the cause of the accident. But it could have been there with perfect security if there had been no negligence, and the workman was entitled to assume that the air of the mine was as safe as that above the ground.

Mr. Justice FIELD: Are they not prohibited from carrying naked lights?—Mr. CRUMP: No; a provision in the Mines Regulation Act provided for carrying safety-lamps in mines where there was reason to believe that there was likely to be an accumulation of explosive gas (section 51, sub-section 7), and it was found in the case that the plaintiff passed the fireman himself carrying a naked light. With regard to his having gone down without enquiring beforehand whether or not it was safe, on an ordinary occasion he would receive no order if going to work, but on this particular one he was ordered to go down, and he (Mr. Crump) submitted that that implied that it was safe for him to go. He submitted, therefore, that there could be no contributory negligence.

Mr. Justice FIELD, in delivering judgment, said: This was an action brought in the County Court of Whitehaven under the Employers' Liability Act, and the plaintiff alleged that he was a workman, and had sustained injury by reason of the negligence of some person in the service of the defendants, his employers. The defendants denied, first of all, that the plaintiff was their servant at the time of the happening of the injury in question. Secondly, they said that there was no evidence of negligence to go to the jury. Thirdly, that there was such contributory negligence as to disentitle the plaintiff to recover, and, fourthly, that the notice of action was insufficient and invalid. Now, the facts were rather curious. There was no doubt that at some time the relation of master and servant did exist between the plaintiff and the defendants. The defendants were coal mineowners, and the plaintiff was a coal-drawer, and both he and another man named McNeil were in the employment of the defendant company as coal-drawers. On the 21st of June (Saturday morning) the plaintiff and his mate went to get their wages, but were told they were stopped. On asking why they were told that it was because they were discharged, and that on Monday morning they were to go down the pit and bring up the tools. The plaintiff accordingly went down on the Monday morning to the place where his tools were kept, and there the accident took place which injured him, and for that injury he brought the action. With regard to the first point, whether or not on the Monday morning at the time of this injury the plaintiff and defendants were in the relationship of master and employer. The plaintiff said it did exist, because he was performing a service under a somewhat peculiar term. The terms were found by the learned County Court Judge. It was admitted to be a rule in the employment of miners at the colliery that when a man was discharged he must bring up his tools before he was paid his wages that were due. Further, that no notification had been made to the plaintiff before finishing his shift on Saturday morning, and that he could not have got his tools out on the Saturday in question after having been informed of his discharge because the pit was closed. Therefore under these circumstances the plaintiff alleged that he was entitled to damages under the Act. It was said by Mr. Mattinson that he was not so entitled because he had had notice which actually did determine the service on the Saturday, and that the relation of master and servant no more existed. There was no doubt a great deal to be said in favour of that view. On the other hand it was quite certain that one of the terms by which he became a servant was that it was his duty to bring up the tools after he should be discharged. It seemed to him (the learned Judge) that the plaintiff could only have been in the mine where the injury happened by reason of his past employment and also present employment. That was to say he was employed at so much to hew the coal, and also to bring up his tools after dismissal from the pit. It was also found absolutely that he could not have gone down on the Saturday, but he had to go on the Monday. Although the point was not free from difficulty he thought that on the whole the relation of master and servant did exist at the time the accident took place between plaintiff and defendants.

The next question was whether there was evidence of negligence on the part of the defendants. The injury was caused by the explosion of gas. By the regulations of the Act the defendants were bound to have produced an adequate amount of ventilation in the mine so as to render it safe to the workmen. Also from time to time within fixed periods to have the places where workmen were getting properly examined to ascertain their safety. Now on the present occasion the defendants had sent down Rundle to go over the mine, but unfortunately on that day they were not working at coal-hewing, and therefore the places where the plaintiff's tools had been left was not one of those in which it was expected any work would be done, and there would have been no danger but for the peculiar circumstance that the man had to go and fetch his tools. Therefore Rundle went over the travelling ways and reported as to them, but not as to anywhere besides, concerning the ventilation. Under those circumstances he could not say that there was no evidence of negligence to go to the jury. The next point was whether or not the plaintiff was guilty of contributory negligence so as to disentitle him to maintain this action. That was really a question which the learned County Court Judge ought to have decided for himself, it being one of fact, and therefore a question for the jury. All he (Mr. Justice Field) could say was that he was not satisfied that there was such contributory negligence. First of all what struck him very strongly was the fact that the plaintiff and his companion were carrying a naked light, but then he thought it would probably receive the answer that Rundle was down there and using one, and there was no reason for the plaintiff to consider it to be dangerous. The last point was a technical one—as to the addressing of the notice of claim, it was the nearest technical objection possible, and he considered that there was nothing in it. He considered, therefore, that the plaintiff was entitled to their judgment with costs.

Mr. Justice MAINSTY was of the same opinion. With regard to the last point he thought that the address was a very good address to the company.

Judgment for the plaintiff with costs.

At Sedgley, on Tuesday afternoon, three colliery managers were charged by the South Staffordshire Government Inspector of Mines with violating the Coal Mines Regulations Act. It was proved that the defendants permitted their workmen to work in roads less than 3 ft. high or 3 ft. wide in works where carbonic gas existed, seriously injuring the health of the men, and permitting imperfect safety lamps to be used. Fines were inflicted ranging from 2l. to 4l.

## THE GOLD AND DIAMOND FIELDS OF SOUTH AFRICA—No. VIII.

BY THOMAS COLLINGWOOD KITTO, M.E.

[ALL RIGHTS RESERVED.]

I find myself gradually getting northward. From Worcester I moved on to Constable and Montague-road, where the principal nugget of gold in the Cape Town Museum was said to have been picked up 24 years before. I slept at the house of Mr. Slear, at Constable, and in the morning was driven out to see the place where the nugget was found; as far as the general appearance of the place goes a person might reasonably expect to find gold there. Several pits had been sunk in the most likely places, and the usual stereotyped reports periodically circulated with varying success. I examined the spot carefully, and tested numerous samples, and am quite sure the place does not contain gold. Near Mr. Slear's house there is a small outcrop of iron ore, which I tested by having a pit sunk in it, and getting assays of the different kinds of stuff which came out of it, it produced nothing but oxide of iron.

About 1 mile north of the Montague-road Station there has been so much work done as to give the place the appearance of an old diggings. Judging by heaps of stuff around the various pits most of them have been sunk to a depth of from 20 ft. to 50 ft. The geological formation is a calcareous shale, in which there is a large quantity of iron pyrites, chiefly crystals. After the pyrites has been exposed a short time to the atmosphere it becomes a brassy yellow colour, and in the hands of impecunious loafers has often done duty for gold, and wrought a great deal of mischief. A more unlikely place than Montague-road Station in which to search for gold it would be impossible to find anywhere, and yet there has been ten times more work done there than there has in places where prospects of gold have been actually found. While at Montague-road I received instructions to return to the neighbourhood of Worcester, for the purpose of inspecting some quartz reefs on the private estate of Mr. Meiring. I found several well-defined reefs, none of which were of any value for gold; but, as a farm, it was under the highest state of cultivation of any I had seen in South Africa. At the suggestion of the Civil Commissioner I also inspected a number of extensive quartz reefs on the Hartbeestee river, but although they bore a very striking resemblance to many of the payable gold reefs of California they did not contain a trace of the precious metal. While prospecting a quartz reef in the railway cutting, 97 miles from Cape Town, a train laden with coals was passing, and I called the attention of the engine-driver and guard to the fact that two of the trucks of coal were on fire; they pulled up, and shouted, "Let the blooming things burn, they belong to the Government." I threatened to report them, when both jumped off, and rushed towards me in a very excited manner, breathing all kinds of vengeance; their pace, however, gradually slackened as they drew near, and they finally ended by bitterly complaining of their low pay, and then extinguishing the fire. There are no places in the world where quartz reefs are larger or more numerous than at Hondsdoorn, Cores, Cold Bok, Veldt, and Worcester districts, or where gold is more scarce.

I next undertook to examine the country between Worcester and the Kimberley diamond fields, and on May 6, 1879, I commenced, arriving at Matjesfontein the same night about 9.30 P.M. I put up at what was said to be an hotel; the bedroom was about 3 ft. broad—the same breadth as the bed, so that entering from the open air it was necessary to get over the end of the bed to get on to it. I never spent such a night of torment; the place appeared to be alive with bats, bugs, and beetles, and the proprietors only object appeared to be to get the maximum amount of coin for the minimum amount of accommodation. The country around Matjesfontein is very uninteresting in every respect. I saw there was not the least prospect of finding gold there, so I moved on to Grootfontein, the then terminus of the railway. I put up at a place belonging to the mail contractor, which was very comfortable. The geological formation of this part of the country is traprock, chiefly basalt and greenstone, with an occasional rim of dolerite. I spent a couple of days looking over this place, but I saw from the first there was little or no prospect of finding any minerals that could be turned to profitable account. I then carefully examined the country as far as Blood river, where there are very extensive runs of shale between the basaltic hills; gold was reported to have been found here a few days before my visit, but it was all a myth. I moved on slowly in the direction of Beaufort, but there was such a sameness in the whole of the geological formation that it is scarcely worth recording; scores of miles of traprock, dotted here and there by a few lacustrine deposits, form the general characteristics of the whole country. The country around Beaufort for a great many miles appear to me admirably adapted to the growth of wheat. In crossing the Brack river I noticed that it contained a large quantity of specular iron and emery sand. In journeying from Brack river to Victoria West we passed the farm of a Mr. Jackson, who made us pay so much per head for all our cattle which were expected to drink from a river which ran through his property. In the lacustrine deposits around Victoria West some very fine organic remains are often found. About 35 miles from the town on the south-east I saw some large outcrops of hematite (iron ore), but nowhere did I see a trace of gold or any other mineral which could be turned to profitable account. I noticed here and there a few very small deposits of soda and potash. About 20 miles north of Victoria West I found a beautiful ierolite, two pieces of which I had assayed by the Government Analyst yielded respectively 50 per cent. and 52½ per cent. of pure nickel. I have never known or heard of ierolite producing such a large percentage of nickel before; the specimen is still in my possession. The country from Victoria West to Bushman's Port is very flat and uninteresting, the prevailing rocks being shale and basalt, without any sign of metals. Some of the rivers are very troublesome for crossing, especially in the dark. One evening I arrived at Accident river just after dark; we were drawn into the centre, where the wagon stuck so fast that 32 oxen could not pull us out, and the task had to be abandoned until daylight. As both myself and bed was in the wagon I slept in the middle of the river, which I afterwards learned was a very dangerous game, not only from the sudden rising of the river, but from its tendency to produce ague. The geological formation of this part of the country is basalt, shale, and a calcareous tufa. In the basalt there are seams of very indifferent-looking quartz, and the deposit in the rivers contains a large quantity of agate, jasper, and various coloured ribbon stones. In nearing the diamond fields I found the price of everything gradually rising, and all negotiations appeared to be carried on as if money was no object. I acknowledge to experiencing a little surprise at having to pay 4s. for a small cabbage, barely enough for a hungry man's dinner. Sir Bartle Frere, who had been on a visit to Pretoria and Kimberley, was expected to pass in a day or two on his way to Cape Town; consequently, in all the hamlets and villages we passed along the route we found great preparations being made for his reception, and if flattering comments and enthusiasm are any sign of popularity Sir Bartle Frere had evidently attained the utmost degree. Being anxious to push on as quickly as possible I found I was pretty much at the mercy of the blacks and half-breeds who were acting as drivers, loaders, and labourers. Whenever they wanted to rest a day a wagon-wheel came off in the most unaccountable manner, or the oxen and mules appeared to

be lost to order. Kindness appears to be treated rather contemptuously by our sable brothers, and the persuasive eloquence of a big cudgel—always resorted to by the Dutch—appears to be the only treatment which commands respect.

## American Mining Notes.

(FROM OUR OWN CORRESPONDENT.)

NEW YORK, JUNE 10.

Midsummer dullness has settled down on the markets, though in some of the mining regions of the Rocky Mountains the snow is disappearing, and the venturesome and patient prospector is beginning his annual race for the incipient bonanza. With the exception of a little movement in lead at practically the old figures, and a wild wondering sort of interest what London speculators will do next in tin, there is nothing doing. The strike in the Western iron mills has now lasted for ten days, and the points scored by masters and men in the contest are about equally divided. When dealing with such unknown factors as the perversity of the men who defy all laws of trade, and with the notoriously weak-kneed average Western manufacturer, it is impossible to forecast the future. It is certainly a blessing to the markets, because the constant decline has been checked to some extent. Buyers, however, show no signs of uneasiness, and material advance is to be looked forward to, even if the struggle should last for weeks. In mining matters everything is quiet. Some of our best paying mines, like the Ontario in Utah, continue to make a splendid showing, and their stocks have begun to advance; but I am unable to discern in any part of our mining horizon even the faintest indications of any coming speculative interest of magnitude.

The following note appeared some time since in the Butte, Montana, *Intermountain*, which may possibly interest some of your readers, I quote it merely as an indication that a part of our Western mining public are inclined to protest against swindling on the ground that it severely injures local interests:—"Good reports are received concerning the present condition and output of the Drum Lummon. The rank corruption charged against a former management has never been disclosed. The cause of this sudden silence is found in the fact that the thieves were made to disgorge. The facts are known, however, and will come out. By right they should first be published in the Helena papers. The *Independent* and *Herald* are both in possession of full and authentic information on the subject. Let them publish to the world the figures and names they have showing who stole all the money and came near swamping a big mining property to the everlasting disgrace of Montana. The thieves have returned a part of the plunder, it is true, but this should not save them from publicity."

Accidentally I have this week been furnished with the details of an attempt to convince a few prominent capitalists of the existence of the philosopher's stone of the alchemists. In some respects it resembles the great attempt of that late distinguished chemist and expert swindler, Paraf, to victimize the innocent Chilians. Some weeks since a gentleman laid before one of the great "bear" leaders of Wall-street a scheme to manufacture gold on a large scale. He induced us to witness some experiments, which, as I understand it, were conducted in the following manner:—A gold coin, previously prepared by some mysterious "pickling" process, was put into a crucible, melted down, and then a small quantity of a wonderful powder was added. The resulting button of gold was taken to the Government Assay Office, and in one case \$3.40 was returned for an original gold dollar, and in another case \$1.43 for two \$20 gold pieces. After these tests, carried out in the presence of a number of gentlemen who closely criticised every movement, the sorcerer, who claimed to be an Austrian, bearing the name Eggros, laid before the bewildered and fascinated "bear" the following proposition:—He demanded at first \$5500 to purchase the materials for the needed quantity of the magic powder, and \$10,000 in gold as the basis of operations from which in the time of a few months \$1,000,000 would be produced. He informed those beneficiaries of this brilliant operation that it would take fully 14 days to properly "pickle" the gold. His would-be victims, after a lifetime of shearing other "lambs" in Wall-street, were not so easily caught. They first demanded and did obtain a small quantity of the great powder. Its virtues were explained on the following hypothesis:—Gold consists of 20 elements, 19 of which have been long known to scientists. The 20th has been the puzzler of the seekers after the precious metal, and that great secret Eggros claimed to have discovered. A quantitative analysis of the powder showed it to consist chiefly of quicksilver, a little silver, a trace of gold, some borax, a little silica, some salt, and a few specks of charcoal. One of the gentlemen surreptitiously changed a "pickled" gold coin for an ordinary coin, and yet the wonderful result was obtained. This proved that the "pickling" was a fraud. Then the sorcerer was closely questioned why he was willing to divide profits with others which he might retain for himself. He replied that the experiments had shattered his health (he looks remarkably robust), that working on a small scale with the poisonous powder did as much injury as the work of producing a large quantity, and that he, therefore, desired to make his fortune at once, and could do so only with the aid he was willing to reward. He offered to submit to a guard day and night during the "pickling" process and the great feat of conversion. Suffice it to say that his apparent frankness, his prompt reply to any doubts, his eagerness to submit to any or all safeguards on the part of his partners fairly carried the great Wall-street "bear" with him. But with one rest of prudence he employed a private detective to watch the movements of the gold maker, and hunt up his record. A day later he received a message asking for an interview at a leading hotel, and had the mortification of being present when the great sorcerer was arrested for a common swindling operation perpetrated three months ago. This little episode, which has thus far been carefully kept from the knowledge of the public, illustrates how gullible even the very shrewdest are. Cupidity will jump at almost any bait, and it is not surprising that the wonderful tales of great mines are so readily believed, surrounded as they are by the halo of undoubted fairy-like successes of a few adventurers. This little incident from actual life, incredible as it may almost appear, is in a different form paralleled almost daily in the history of mine promoting.

## THE MINERALOGIST OF THE MADRAS GOVERNMENT.

The appointment of Mr. Bosworth-Smith by the Secretary of State to be Mineralogist for the Madras Presidency is evidence that this Government is aware of having neglected its mineral resources, and is anxious that something should be done to develop them. His duties, the order of the local Government says, will be "to create in the Central Museum a perfect index to the mineral wealth of the Presidency, and to begin a mineralogical survey in consultation with Dr. Bidie and such other officers as Government may instruct him to communicate with." In the present infant state of mineralogical enquiry in this Presidency Mr. Bosworth-Smith will have much to discover and organise for himself. Experience and the recorded result of fellow-labourers in the same field are either non-existent or are

extremely limited. Students of Indian mineralogy are few, and books thereon are rare. The ascertained mineral wealth of the Presidency is insignificant. Some coal-bearing rocks are said to exist in the Godavery district; but investigation has not proceeded beyond mapping their position, and making a few borings, which are said to have shown the coal to be of inferior quality. In Salem bands of magnetic iron have been traced for miles, but enquiry has gone no further, and no smelting works or manufacturing have been established. In Kurnool and Malabar there is a small indigenous iron industry which yields a trifling revenue. Copper mining occurs in Cuddapah, and diamond fields have been discovered in Kurnool, but everything is undeveloped. Mr. Bosworth-Smith must, therefore, begin his work in the character of an explorer. His instructions are to proceed to Ootacamund, after examining the Museum collection, and receive the further orders of Government. These further orders have not yet been issued, but we are credibly informed that among the subjects to which attention will be called, and which he will be required to report upon, will be that of the causes of the present collapse of the Indian gold mines, and the prospect of their possible revival.

The earliest official report by the committee specially appointed for the purpose by the Government of the day on the auriferous rocks of Malabar left no room to doubt the existence of gold in Wynaad, and other parts of Southern India. That committee wrote:—"Gold-dust has been found in the bed of the Godavery, and in Malabar in the bed of the river which passes Nilambur in the Trivadi district. It has, however, been procured in very small quantities in Wynaad, in the Arcot district, and in the sand of the Beypore river, near Calicut." Between the date of that enquiry, and the fuller and more authoritative one by Mr. Brough-Smyth, there was an interval of half-a-century, during which time nothing was done officially to test the alluvial deposits of the country, or to encourage quartz mining. Private individuals, however, more or less qualified by travel or experience, from time to time visited Malabar and the Wynaad, and kept up the favourable impression conceived of their auriferous character, till, in 1875, the Alpha Company took up the subject of quartz mining in earnest, and placed some reliable statistics at the disposal of the public. That company failed owing to deficiency of capital, and errors in management, which were indicated by Mr. Brough-Smyth in the appendix to his report. It is some such candid exposition of the causes of failure of the numerous companies that sprang into existence after Mr. Brough-Smyth's report was made public that we now require, and it would be well if the primary duty of Mr. Bosworth-Smith should be to begin this investigation at the point his predecessor left it, and to trace events down to the present moment, demonstrating why, if gold does exist, none of the various companies have succeeded in extracting it. Whether the want of success is due to chemical or mechanical drawbacks, whether the ore of Southern India is refractory, and needs special treatment, and what that treatment should be. Some such enquiry Government should undertake to divest themselves of the moral responsibility attaching to them of having been the indirect cause of vast sums of British capital finding their way into Wynaad, and being sunk in what appears to be abortive speculation.

While the efforts of the gold companies have ended in disaster, the native Rajahs have derived a regular and remunerative revenue in gold dust, washed in the most primitive manner from the soil. They laugh at the futile efforts of science and mechanism, while their own hoards are steadily increasing by the simplest and most inexpensive processes. It seems a matter for regret that some of the gold companies did not originally turn their attention to alluvial washings. Although less rich in results than some of the quartz, the alluvial might have paid expenses, and thus helped to husband resources by making the capital hold out until real mining proved the reefs. The success which at the present day attends the native washings seems to leave no doubt that there is gold in the alluvial, and if there is some, there is sure to be more. No single effort that we are acquainted with has proceeded to bottoming, in mining parlance. A paddock here and there was tried and given up for the attractions of larger and grander operations on the quartz reefs; but alluvial washings have never been fairly tried. A mere theoretical mineralogist fresh from England, and new to the country, may not be able, unaided, to conduct the investigation as we should like to see it conducted by Mr. Bosworth-Smith. To make it complete and practical, the Government should provide him with a working mining assistant similar to the one Mr. Brough-Smyth brought with him in the person of Mr. Thomas Laing to this country. A knowledge of the Wynaad, its history, and topography, are essential, or much of Mr. Bosworth-Smith's time may be wasted, and his enquiries misdirected. A thoroughly practical miner can be easily obtained, if not in this country, in Australia, and with his assistance Mr. Bosworth-Smith will be able to conclude his investigations more rapidly, and place his suggestions without delay before the Government and the public. Whether anything comes of the enquiry or not will depend very much upon circumstances and the competence of Mr. Bosworth-Smith for the task assigned to him. It is doubtless a delicate one, and large interests are involved, but the Government should not leave things in the stage at which they have arrived.—*Madras Weekly Mail*.

## COMMERCIAL FAILURES.

The number of failures in England and Wales gazetted during the week ending Saturday, June 20, was 109. The number in the corresponding week of last year was 54, showing an increase of 55, being a net increase in 1885, to date, of 269.

The failures were distributed amongst the following trades, and, for comparison, we give the number in each in the corresponding weeks in 1883 and 1884:—

	1885.	1884.	1883.
Building trades.....	13	2	21
Chemists and druggists.....	3	—	2
Coal and mining trades.....	3	—	1
Corn, cattle, and seed trades.....	2	—	5
Drapery, silk, and woollen trades.....	17	8	17
Earthenware trades.....	—	—	3
Farmers.....	9	2	7
Furniture and upholstery trades.....	3	—	4
Grocery and provision trades.....	12	12	34
Hardware and metal trades.....	2	2	4
Iron and steel trades.....	5	2	2
Jewellery and fancy trades.....	5	—	11
Leather and coach trades.....	11	6	12
Merchants, brokers, and agents.....	—	6	20
Printing and stationery trades.....	3	1	4
Wine, spirit, and beer trades.....	7	5	14
Miscellaneous.....	14	8	24

Totals for England and Wales. 109 ..... 54 ..... 185  
Scotland ..... 25 ..... 27 ..... 18  
Ireland ..... 9 ..... 3 ..... 2

Totals for United Kingdom ... 143 ..... 84 ..... 205  
The number of Bills of Sale published in England and Wales for the week ending June 20, was 276. The number in the corresponding week of last year was 215, showing an increase of 61, being a net increase in 1885, to date, of 264. The number published in Ireland for the same week was 14. The number in the corresponding week of last year was 16, showing a decrease of 2, being a net decrease in 1885, to date, of 11.—*Kemp's Mercantile Gazette*.

## THE COLLIERY EXPLOSIONS OF THE LAST TWENTY YEARS.

The calamity at Clifton Hall has once more called attention to the risk of life and limb under which the coal miner pursues his hazardous vocation. As early as 1621 the fire-damp claimed its victims, but no complete list exists of explosions and accidents in coal mines. An article dealing with those from 1756 to 1863 appears in the Transactions of the North of England Mining Institute. Taking up the catalogue of calamity at that point, it is believed that the following memoranda form an approximately complete statement of colliery disasters from the beginning of 1863 to the end of 1884:—

1863, January 26.—At Bradley Colliery, near Bilston, three men were killed through the rope giving way when they were being let down the shaft.

1863, October 17.—An explosion at Morfa Colliery, Glamorgan-shire, caused the death of 39 men.

1863, December 26.—14 men and boys who were working with unprotected lights were killed by an explosion in the Maesteg Colliery, Glamorgan-shire.

1865, June 16.—An explosion of fire-damp in the New Pit Colliery, Tredegar, caused the death of 26 workmen.

1865, December 20.—An explosion of fire-damp in the Upper Gethin Coal Pit, Merthyr Tydfil, caused the death of 30 men and boys.

1866, June 14.—An explosion of fire-damp took place in Dukinfield Colliery, near Ashton, when 37 men were suffocated. From the commencement of the pit, five years before this accident, 386 lives had been lost.

1866, October 29.—An explosion of fire-damp took place in Pelton Fell Colliery, near Newcastle: 24 lives were lost.

1866, December 12.—The explosion which occurred at the Oaks Colliery, near Barnsley, was the most fatal in the entire annals of British mining. On the morning of the ill-fated day 370 men and boys descended to their work, and about 20 minutes past 1 in the afternoon there was heard the sound of a great explosion. The first exploring party rescued 18 men, all of whom were seriously injured. By the next morning between 30 and 40 bodies had been brought to the surface, when a second explosion caused the death of an exploring party of 28. This second calamity put an end for a time to the search, but on the 14th the signal bell indicated that some one was still alive at the bottom of the shaft, and Samuel Brown, the only survivor of the exploring party was drawn up. He had wandered for some distance, falling over the mangled bodies of the dead. Explosion followed explosion, and the only method of staying the raging fire in the workings was by closing up the shaft. The number who perished is set down at 340. Of the 18 who were drawn up alive, six died of injuries they had received. The funeral at Barnsley on the 23rd was a most pathetic and impressive scene. A relief fund was organised for the benefit of the widows and children.

1866, December 13.—An explosion occurred at Talk-o'-th'-Hill, North Staffordshire, at noon, when about 200 men and boys were at work. It resulted in 85 deaths. The accident was said to be due to the reckless exposure of the safety-lamps.

1867, November 8.—A terrible explosion occurred in the Ferndale Colliery, Rhondda Vach Valley, which set fire to the whole of the workings. The work of recovering the bodies was very difficult, owing to the masses of coal which blocked up the passages, but within a week they were nearly all got out, when it was found that 167 workmen had perished.

1868, May 15.—At Cannock Chase Colliery six men were killed by the breaking of a chain to which the cage they were descending in was attached.

1868, October 1.—Ten workmen were killed and 11 injured by an explosion in the Green Pit Colliery, Ruabon.

1868, December 30.—In the Queen's Pit, St. Helen's, Wigan, an explosion occurred, when 22 workmen were killed and three injured.

1869, March 17.—A dam burst in Brierley Hill Pit and flooded the workings. All the men with one exception were rescued alive after an imprisonment varying from five to six days.

1869, April 1.—At the Highbrook Colliery, Wigan, 36 men were killed by an explosion.

1869, May 25.—An explosion in the Sinking Pit, near Pontypool, caused the death of seven men.

1869, June 10.—There was another explosion at the Ferndale Colliery, Rhondda Vach Valley, causing the death of 60 workmen.

1869, July 21.—An explosion, by which 58 workmen lost their lives, occurred in the Queen Pit, Haydock, Wigan.

1869, October 22.—An explosion took place at Newbury Colliery, Frome, by which nine men lost their lives.

1869, November 11.—An explosion in the Hendreforgan Colliery, Swansea Valley, caused the death of six people.

1869, November 15.—At the Ince Colliery, Wigan, an explosion occurred, firing the pit and killing 26 men. The fire was got under by turning a stream of water down the shaft.

1871, February 24.—An explosion in the Pentre Colliery, Rhondda Valley, caused the death of 39 workmen.

1871, March 2.—An explosion at the Victoria Pit, Ebbw Vale, caused the death of 19 out of the 30 persons who were in the pit at the time.

1871, September 6.—An explosion at the Moss Colliery, Wigan, caused the death of 69 men and boys, who were working in the Nine-foot seam. When the surface damage was repaired explorers descended, and found that some of the men were still safe. When those nearest, with the explorers, were drawn up there followed a second explosion, and the sides of the pit were on fire, so that it was necessary to close the shaft and give up all hope for those who remained in the pit.

1871, November 25.—An explosion at Seaham, Durham, resulted in the death of 30 men.

1872, October 7.—An explosion in the Deep Pit of Marley Colliery, near Dewsbury, was attributed to the carelessness of the miners smoking in the mines. Out of 44 men at work in the seam, 34 were killed.

1872, November 14.—Twenty-two lives were lost by the flooding of the Kelsall Hall Colliery, Walsall. The most determined efforts were made to rescue those who remained in the mine, but with only partial success; 19 were shown to have died from choke-damp, the water not having reached the level where they had taken refuge.

1873, February 18.—An explosion at Talke Colliery killed 20 workmen, all engaged in the seam where the explosion occurred.

1873, May 28.—An accident which was believed to have its origin in an overcharge of powder caused the death of seven men in the Wynnstey Colliery, Ruabon.

1873, June 31.—An explosion of fire-damp in the Bryn Colliery, near Wigan, caused the death of six shot-lighters—all the men who were in the pit at the time.

1874, April 14.—An explosion at the Astley Deep Pit, Dukinfield, caused the death of 51 men and boys. There were 151 at work in the pit at half-past seven in the evening, when the disaster occurred. At one point 60 men were imprisoned by the fallen roof, and though great efforts were made to cut a way through it, only 10 of the men were rescued alive. One of the rescued died afterwards of his injuries.

1874, July 18.—An explosion at the Wigan Six-foot Mine caused the death of 14 workmen.

1874, November 20.—An explosion at Rawmarsh, Rotherham, caused the death of 23 workmen and the serious injury of four others. These were all who were in the mine at the time of the accident.

1874, December 24.—By an explosion at Bignall Hill, Staffordshire, 17 out of 19 men working in the Thick coal were killed.

1875, January 4.—An explosion happened at Alnwick Main Colliery, Park Gate, Rotherham. There were 300 men in the pit at the time, but most of them, happily, escaped to the shaft. Eight men were killed. It is remarkable that in some of the distant workings the men continued their labour unconscious that there had been any accident.

1875, April 30.—An explosion at Bunker's Hill Colliery, North

Staffordshire, caused the death of 42 men and boys. This number included every soul at work in the pit at the time.

1875, September 11.—Eleven colliers were poisoned by the noxious gas in Dennington Wood Colliery, Shropshire. The bodies were recovered with great risk by workmen, who opened a passage from a different shaft.

1875, December 6.—The explosion at Swarthe Colliery, near Barnsley, caused the death of 140 workmen engaged in the Half-way seam, and there were also explosions at the Alexandra Pit, Wigan, and the Duffryn Pit, Tredegar.

1876, January 3.—Five men out of 11 employed in the Seven-foot seam were killed by an explosion at the Gammage Pits, Talke.

1876, December 18.—An explosion of fire-damp at Abertillery, Monmouthshire, caused the death of 20 men, and the serious injury of others.

1877, January 23.—Seventeen lives were lost by a fire at Stonehill Colliery, Farnworth. It was supposed that the accident originated from a boy carelessly setting fire to a brattice-cloth. The fire was not extinguished for several days. On the same day the Home Farm Colliery, at Hamilton, was flooded.

1877, March 8.—An explosion at the Worcester New Pit Colliery, Swansea, caused the death of 17 persons.

1877, April 10.—The flooding of the Tynnewydd Pit, in Rhondda Valley, occurred. When the day's work was over the men, on their way to the shaft, found the roadway turned into the channel of a rushing stream. The shaft was clear, but every passage leading from it was filled with water to the crown of the arch. The exploring party heard a faint knocking, and it became known that a number of men were imprisoned behind a coal wall 30 ft. thick. This was penetrated and four men were rescued. Another died from an explosion when the rock was pierced. On the afternoon of the second day another faint knocking revealed the possibility of others being alive behind a barrier of 40 ft. of coal. Eventually five more men, who had been entombed for 10 days, were brought forth alive. Great interest was excited by the painful and dramatic circumstances of this accident, and a subscription was made for the benefit of the survivors and their rescuers, who were the first to receive the Albert Medal, which had previously been given only for heroism at sea.

1877.—By an explosion at King's Pit, Pemberton, 37 out of 43 who were at work were killed.

1877, October 22.—A calamitous explosion occurred at Dixon's Colliery, High Blantyre, near Glasgow. There were 233 miners in the pit, and of these only 20 were rescued, and several of these died from their injuries.

1878, March 8.—An explosion at Kilsyth caused the death of 16 persons.

1878, March 12.—An explosion caused the death of 43 persons at Unity Brook Colliery, Kearsley.

1878, April 16.—The flooding of the Western Moor Colliery, Neath, caused the death of four men. A miner had accidentally struck into an old mine which had been closed for about a century, and the consequence was an overwhelming rush of water from the disused workings.

1878, June 7.—A fatal explosion took place at the Wood Pit, Haydock. The number of lives sacrificed was about 200.

1878, July 20.—An explosion at Werter Gartsherrie Collieries, Kirkintilloch, killed three men.

1878, September 11.—The disaster at the Prince of Wales Colliery, Abercarn, caused the sacrifice of 263 lives. The cause was inexplicable; the discipline of the works was good, and every possible precaution was believed to have been taken for ventilation.

1879, January 13.—An explosion in the Rhondda Valley.

1879, July 2.—An explosion at High Blantyre Colliery led to the death of 27 men. It is thought that the cause of the disaster was smoking in the mine. On some of the dead were false keys to open the Davy lamps, and matches were found in the pockets of others.

1879, September 12.—An explosion at Leyceet Colliery caused the death of five men and the serious injury of three others.

1879, October 4.—An explosion at the "Deep Drop," or Silkstone Pit, near Wakefield, caused the death of 19 colliers and the injury of others.

1880, January 21.—An explosion at Leyceet Colliery resulted in the death of 60 miners.

1880, July 15.—An explosion at the Risca Colliery, Newport, caused the death of 119 men and boys. A thunderstorm raged outside, and it is thought that the lightning entered the mine and fired the gas.

1880, September 8.—An explosion occurred at Seaham Colliery. After three unsuccessful attempts, a fourth exploring party rescued 17 men, unhurt, but it was then found that the scene of the explosion was a lower seam, where nearly 200 men were at work, of whom only 35 were ultimately rescued.

1880, December 10.—An explosion at the Naval Steam Coal Colliery, in the Rhondda Valley. Nearly 100 men were at work in the Pen-y-graig Pit, and of these only four came out alive.

1881, October 1.—An explosion at Park Lane Collieries caused the death of two men. On the same day a fall of walling at Ynywain Colliery, Pencuod, resulted in the death of four men.

1881, October 6.—An explosion at Messrs. Neilson's pits, near Glasgow, caused the death of two men.

1881, December 20.—An explosion at Abram Colliery, by which it was feared 40 lives were lost.

1882, February 11.—An explosion occurred at Coedcae Colliery, in the Rhondda Valley. Six men were killed by this accident, which is thought to have originated in the upsetting of some oil cans, by which the woodwork of the shaft was set on fire.

1882, May 2.—An explosion at the Baxterley Colliery, Warwickshire, caused the death of nine men; 12 more were killed in an attempted rescue. On the same day seven men were killed by an explosion at Morley, near Leeds.

1882, November 6.—An explosion at Parkhouse Pit, near Chesterfield, resulting in the loss of 30 lives.

1883, August 15.—Twelve men were killed by the breaking of the rope of a skip in which the miners were being brought to the surface.

1883, November 7.—An explosion at the Monkfield Colliery, Acornington, caused the loss of 67 lives.

1883.—An explosion at Wharfedale Carlton Colliery, near Barnsley, caused the death of 20 men, most of whom were suffocated by the afterdamp.

1884, January 8.—Seven men were injured at Town Hall Colliery, near Manchester, by the fall of a cage.

1884, January 28.—Eleven men were killed by an explosion at Pen-y-Craig, Rhondda.

1884, April 3.—An explosion at Park Slip Colliery, near Cardiff, caused the death of two men. Seventeen others were imprisoned.

1884, May 26.—A fire in the Niddrie Coal Pit, near Edinburgh, caused the loss of seven lives.

1884, November 8.—An explosion at the Hochin Colliery, Tredegar, caused the death of 15 persons.

1884, December 11.—Seventy-five colliers were killed by afterdamp in a coal pit near Temesvar.

1884, December 13.—Four men were killed at the Treharris Colliery by the breaking of the rope of a "cradle." Another had an almost miraculous escape by seizing the guiding rope and remaining suspended for several hours in the shaft.

The Lord Mayor, M.P., has received 100l. from Messrs. Rothschild and Sons, 100l. from Messrs. Baring Brothers, 50l. from the Earl of Radnor, 50l. from Messrs. J. Sturt and Sons, 20l. from the Misses Bonhote, and 25l. from Lord Vernon towards the fund now being raised at the Mansion House for the relief of the sufferers by the recent colliery accident near Manchester.

HOLLOWAY'S PILLS AND OINTMENT are remedies which should invariably be taken by travellers in search of health, pleasure or business. Many deleterious influences are constantly at work in foreign climates, tending to deteriorate the health; these and the altered conditions of life will entail on those who travel the necessity of carefully attending to early symptoms of disease, and they will find the use of these remedies to be highly necessary, the action of the pills being purifying and strengthening and of great service in cases of fever, ague, and all inflammatory diseases, whilst the ointment is a sovereign cure in cases of piles, bad legs, bad breasts, wounds, and ulcers. Holloway's remedies do not deteriorate by change of climate.

## FOREIGN MINING AND METALLURGY.

As regards the French Iron Trade, it may be observed that a meeting of foremasters just held in the Nord was not attended with much practical result, in consequence of the abstention of two of the principal works of the Ardennes, the adhesion of which is still awaited. The meeting was adjourned for a fortnight; the adjourned gathering will be held at Valenciennes. Meanwhile, prices appear to be still declining rather than otherwise, business having been done in merchants' iron at 5l. 14s. per ton, with an abatement of 2s. to 4s. per ton in the case of any important transaction. The Steelworks Company of France has obtained a contract for 4000 tons of steel rails upon Brazilian account; this order has been secured in competition with the syndicate of English, German, and Belgian steelworks. In the German iron trade prices have not varied during the last few days, the markets continuing to present a quiet and even depressed tone. The proprietors of German steelworks complain a good deal of the extremely low rates at which they are compelled to accept orders. The imports of English pig into Germany in May amounted to 17,400 tons, as compared with 27,500 tons in May, 1884. The exports of pig from Germany in the first four months of this year amounted to 66,893 tons. Those of wire were 53,718 tons; those of iron, 43,443 tons; and those of rails, 37,208 tons. Small rail contracts continue to be keenly competed for in Germany, this was sharply illustrated the other day at Erfurt.

The condition of the Belgian Iron Trade has not materially varied, orders remaining scarce and difficult to obtain. Although quotations have been run down to a very low point, producers have to make some sacrifices in order to secure orders. Employment may still be said to be general, but it is only precarious employment from day to day. The foundries appear to have suffered the most, although they are now able to obtain raw materials upon easy terms and conditions. English pig has not made more than 1l. 17s. 6d. per ton upon the Belgian markets. At Charleroi a quotation of 2l. 14s. per ton is maintained for the special pig of the district. Refining pig, hard iron, has made 1l. 17s. 6d. per ton; ordinary pig, 1l. 15s. per ton; and mixed pig 1l. 12s. per ton. No. 1 iron has been selling at 4l. to 4l. 2s. per ton for exportation, and 4l. 3s. 6d. to 4l. 6s. per ton on home account. No. 2 has made 4l. 6s. to 4l. 12s. per ton, and No. 3 4l. 12s. to 4l. 18s. per ton. Girders have been rather pressed for sale; 4l. 4s. per ton is considered about an average price by makers. No. 2 plates have also been a good deal offered at 5l. 10s. per ton for exportation, and 5l. 12s. per ton on home account. No. 3 have made 6l. 8s. per ton, and plates of commerce 8l. per ton. The Belgian Collieries Company reports that its working operations last year were attended with a loss of 7005l., as compared with a loss of 1640l. sustained in 1883. The company sold last year 411,624 tons of coal.

Recent adjudications of coal contracts do not appear to have exerted much influence upon the Belgian coal markets, prices having generally remained at about the same level, and notwithstanding the efforts made by some consumers to obtain easier rates, it is probable that previous quotations will be generally supported. Coke does not appear to be at all in increased request in Belgium. The number of trucks carrying coal and coke which passed over the Belgian State Railways in the week ending June 14 was 16,027, as compared with 16,376 in the corresponding week of 1884. The German coal markets do not appear to rally from the depression to which they have been reduced, although a reduction which has been effected in the production of coke has imparted a little more firmness to that article. The dulness of the German coal markets is not due to any want of energy on the part of German coalowners; on the contrary, they have recently been making arrangements for establishing a coal depot in the Cape de Verd Islands for steamers bound for Brazil. The exports of coal from the Zollverein in the first four months of this year amounted to 2,899,234 tons, as compared with 2,763,844 tons in the corresponding period of 1884, showing an increase of 135,390 tons this year. The deliveries to Germany and Hungary in the first four months of this year were 807,445 tons; to Switzerland, 204,582 tons; to France, 385,393 tons; to Belgium, 270,488 tons, and to the Low Countries, 897,588 tons.

## THE RISE IN LEAD AND SILVER SHARES.

### THE YORKSHIRE LEAD MINES (LIMITED).

A Correspondent writes:—"Lead is advancing, and likely to rise, thus more attention is being paid to lead mines that have been for a long time depressed and neglected." This, coming as it does from the *Mining Journal* of last week, is very encouraging, but he might, *en passant*, have gone further, and referred to the times when Van Lead shares (4l. 6s. paid) were readily saleable in the market at over 80l. a share; also in regard to Green Hurth, in Durham, on the borders of the celebrated Yorkshire Lead Mines, which, with 6s. per share only paid-up, were saleable at 8l. per share, and as to many others. If, however, such premium prices are not now obtainable, there are equally promising prospects, one of which deserves to be notably mentioned. This is the celebrated historical Hurst Lead Mines Territory, as it may be termed, in the Swaledale district, which has been developed by a private joint-stock company (limited), into whose hands it passed over three years ago, the capital being principally provided by the Chairman of the company, Mr. Townsend Kirkwood, himself a practical lead smelter, under whose direction and control all the machinery, steam-engines, and other equipments of the mines, now being perfected for the return of regular monthly supplies of lead ore to Richmond and Newcastle-on-Tyne where this "brand" of ore is so much in request, are approaching completion. From the reports and letters of the engineer and those in charge it is an assured fact that these deliveries will commence in the month of July next, and be permanently continued as the extensive and practically inexhaustible ore ground is laid open. A rate of from 100 to 500 tons of ore per month is anticipated, equaling the returns of the celebrated Weardale mines when worked by the Blackett Beaumont family, yielding as they did profits of from 50,000l. to 60,000l. per annum, and realising to the proprietors an enormous fortune. It may be mentioned, however, with regard to the Hurst Mines, to which we more particularly refer, that they are not burdened with the enormous dead-rent imposed by the Ecclesiastical Commissioners on the Weardale mines amounting to some thousands a-year, in addition to a heavy royalty, but are held at a nominal rent of 100l. a-year, merging into a royalty on the produce of about 1-16th, the ore being workable for miles at the very shallow depth of about 40 fathoms from which it can be raised, dressed, and sent to market at about 4l. 10s. per ton, leaving to the holders of shares a profit of about 4l. per ton at present prices, and on the small amount of the company's capital should at no distant date, with the hardening and upward tendency of the lead market, return the whole of the share capital in the shape of dividends. The investment, however, is but little known. The shares of the company are 1l. each fully-paid up, and we understand that 10s. to 12s. 6d. per share is the price now asked for them with an upward tendency as the lead market improves. The investment is worth looking after, and the secretary, Mr. Lamb, 2, Threadneedle-street, E.C., will no doubt afford the fullest information on application personally or by letter.

# THE BRITISH AND FOREIGN MARINE INVENTIONS COMPANY (LIMITED).

## INVENTIONS AS INVESTMENTS.

Amongst others, one of the most noteworthy features at the Inventions Exhibition is the application of electricity to sea and river soundings, by means of which the depth of water for all ships and craft, from the ironclad of 10,000 tons down to the yacht or smallest coaster, can be instantaneously ascertained, and thus disaster prevented. The old method of using the "plumb line" is becoming obsolete naturally from its primitive and almost non-effective character, and most of the disasters at sea, which have been before and adjudicated upon by the Wreck Commissioners of late, have been attributed to the proper want of precaution by captains and masters of vessels in this respect. Happily, however, this seems to be in a fair way of being remedied by the application of the simple and inexpensive means referred to above, in addition also to which it may be pointed out that a Rocket tube has been perfected and patented with rockets of a character and condition much superior to those provided by the Board of Trade. They are impervious to damp, are better distress signals, can be fired in any weather, and from any part of a ship even by a boy, and are better than anything hitherto produced. They are also considerably cheaper than any at present in use, and this is of importance to all shipowning interests. The inventions may be briefly described as the Rocket tube signal, which is a simple and effective instrument, consisting of a gun-metal tube, 18 in. long, to hold a rocket, which on being fired ascends 400 ft. in the air, and explodes with a loud report into stars, either red or green. It can be fired in any bad weather and from any part of the ship. The electrical sounding apparatus is of the greatest importance; it is inexpensive and simple in construction, and will it is believed entirely supersede the old plumb line; it can be towed and hove down to the bottom of the ship, and in coming in contact at once communicates on board denoting the depth. The prize life buoy can be made single or double, to support one or more persons, as desired; it is always ready for use, and can be lowered into the water instantaneously, and for simplicity, effectiveness, and cheapness, is better than any other. The automatic sounder is a most complete and comprehensive apparatus for giving timely warning to ships when approaching land, rocks, or shoals, in dark or foggy weather, and for other purposes, and is especially suitable for large ironclads and ocean-going steamers. These valuable inventions, which are now on view at the stands of the inventors at South Kensington, are the property of the British and Foreign Marine Inventions Company (Limited), the 21. shares of which, we need hardly say, considering that all the appliances are paid for, and are to be made for the company under contract, by which judicious arrangement practically no capital outlay is needed, may be considered an attractive investment, looking at the fair prospects of a 15 to 20 per cent. dividend resulting from the business operations of the undertaking, they are worth the attention of the investing community. A 21. share, with the probability of 15 to 20 per cent. dividend, ought to be worth buying at par, that is 21. each. Gold medals and other prizes have been awarded, the directors of the company are gentlemen of high standing, the bankers are the British Linen Company Bank, one of the oldest and wealthiest Scotch chartered banks, and the secretary, at the offices, No. 2, Threadneedle-street, E.C., will no doubt afford the fullest information to enquirers on the subject.

### J. A. JONES,

MINING ENGINEER,

GIJON (ASTURIAS), SPAIN.

Mines inspected and reported on. Assays and valuations effected. Has on hand offers of Mines of Copper, Calamine, Blende, Phosphate of Lime, Tin, Lead, Iron, Manganese, and Manganiferous Iron Ores.

### MURRAY ASTON,

MINING AGENT,

CHRISTCHURCH, CANTERBURY, NEW ZEALAND.

Mines and other properties in any part of Australasia inspected. Reports by Government Geologists procured where required. Terms very moderate, and expense of sending Engineer from England avoided.

ADDRESS CABLEGRAMS, "ASTON, CHRISTCHURCH."

### H. R. LEWIS AND CO.,

MINING OFFICES,

BARTHOLOMEW HOUSE, BARTHOLOMEW LANE, LONDON, E.C.;

AND

157, ST. VINCENT STREET, GLASGOW.

Supply accurate and reliable information on all Mines, Home and Foreign. Execute orders and advise the Purchase or Sale of Mining Securities. Undertake the Management of Mines or Mining Companies. INVESTORS WILL AVOID LOSS BY CONSULTING US BEFORE BUYING OR SELLING MINING SECURITIES.

ESTABLISHED 1871.

### JOHN REID,

CERTIFICATED MINE MANAGER, MINING ENGINEER,

AND SURVEYOR,

INSPECTS, REPORTS ON, and VALUES COLLIERIES, MINES, and MINERAL PROPERTIES.

Plans and Sections prepared, and general advice given on Mining matters.

LONGTON, STAFFORDSHIRE.

### JAMESON and WOODS,

CONSULTING CIVIL AND MINING ENGINEERS and METALLURGISTS.

Particular attention devoted to Mines and Smelting Works in Europe. A speciality made of Eastern Europe.

Mines and Works inspected upon and valued on moderate terms.

Plant and Machinery estimated for and erected upon tenders.

Independent Mining Reports made upon properties in any part of the world, and general advice and counsel given on request.

Address—27, KING STREET, CHEAPSIDE, LONDON, E.C.

Registered Telegraphic and Cable Address: KOVITCH, London.

### ALFRED H. KNIGHT, F.C.S.,

ANALYTICAL CHEMIST AND ASSAYER,

18, CHAPEL STREET, LIVERPOOL.

FEES MODERATE. LIST SENT ON APPLICATION.

### WM. BREDEMAYER,

MINING, CONSULTING, AND CIVIL ENGINEER,

ROOM No. 11, HOOPER ELDRIDGE'S BUILDING,

MAIN STREET, SALT LAKE CITY, UTAH,

United States Mineral Surveyor for Utah and Idaho, Notary Public, Geological Examinations, Reports on Mining Properties; Surveys Mines, Railroads, and Canals, and Superintends the Workings of the same. Prepares Estimates and Plans for Opening and Working Mines. Expert on Mining Questions before the Courts.

Address, P. O. Box, 1157, Salt Lake City, Utah.

AN ASSOCIATE of the Royal School of Mines is now

DISENGAGED. Practical Assayer. Situation abroad preferred. Can Survey.

Address, H. G. GRAVES, 29, Halsey-street, London, S.W.

## COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.

DISTRICT UNDER THE CHARGE OF THOMAS BELL Esq.,  
H.M. INSPECTOR OF MINES.

NOTICE IS HEREBY GIVEN, that an EXAMINATION for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, will be HELD on the 21st and 22nd days of July, 1885, and CANDIDATES INTENDING TO PRESENT THEMSELVES AT SUCH EXAMINATION must, on or before the 14th day of July, notify such intention to the Secretary of the Board of the above-mentioned District, from whom all information as to particulars can be obtained.

By order of the Board,  
Tees Grange, Darlington. G. W. BARTLETT, Secretary.  
N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

## MINERAL PROPERTY IN NORTH WALES FOR SALE BY AUCTION. THE VRON LEAD MINING COMPANY (LIMITED).

M. DEROME (of Kendal) has been favoured with instructions TO SELL BY AUCTION, on TUESDAY, June 30th, 1885, at Two o'clock, upon the Premises of the Vron Lead Mining Company (Limited), in the parish of Halkyn, in the county of Flint, North Wales, about two miles from either the Naunser or the Rhylmwy Railway Stations, on the Mold and Denbigh Railway, all that

### VALUABLE MINERAL PROPERTY

Known as the VRON MINE, which is now in the possession of the Vron Lead Mining Company (Limited), held under lease embracing an area of about 74 acres, together with the WHOLE of the

### PLANT and MACHINERY, APPLIANCES and APPURTENANCES

Thereof belonging, amongst which may be enumerated:—

#### AT THE NORTHERN SHAFT.

Horizontal high pressure 16 horse power STEAM ENGINE, winding gear, pumping apparatus, cylindrical egg end boiler, pit head shears 35 feet high, with double pulley.

#### AT SOUTHEY'S SHAFT.

An 8 inch portable STEAM ENGINE, 9 feet by 5 feet, with drum for winding 100 yards deep, a double pulley pithead, 1500 bricks, and in the shaft 100 yards ladders and 30 yards ladders in the sump.

#### ON SURFACE.

An excellent WEIGHBRIDGE, powerful crab winch.

#### SMITHY AND CARPENTER'S SHOP.

Smith's bellows, anvil, vice, and tools, quantity of new iron, grindstone in frame, carpenter's box and bench, miner's box chest and tools, and sundry boards and other timber.

The office fittings include office desk, tables, cupboards, chairs, &c.

On the works have also been erected in a substantial manner office, men's cabin, blacksmith's and carpenter's workshops, store house and weigh house.

The property being offered in One Lot as a going concern presents a very eligible opportunity for capitalists to proceed with the further development of the mine, which from its position can scarcely fail to yield favourable results. It is situated on the noted Halkyn Mountain Range in the heart of the richest and most productive lead-bearing district in North Wales in the immediate vicinity of the Halkyn, the Great Hendre, the North Hendre, the Rhosmor, and other highly productive mines.

Particulars and conditions of sale may be obtained, when ready, of the Auctioneer; or of Messrs. LINDSAY, MASON, GREENFIELD, and MASON, Solicitors, 54, Basinghall-street, London.

## FOR SALE, BY PRIVATE TREATY, the EXTENSIVE and VALUABLE 21 years' LEASES or SETTS of the celebrated old SOUTH PROVIDENCE and REETH CONSOLS TIN MINES.

Situate in the very heart of a good mineral district in the parishes of Towardack and Lelant, near St. Ives, Cornwall, and extending over a mile in length, together with:—

Good account house, engine house, smithy, carpenter's shop, changing house, and other necessary buildings, all in excellent condition; together also with the 50 inch cylinder PUMPING ENGINE and two boilers, 22 inch cylinder WINDING ENGINE, 36 inch cylinder engine suitable for stamping, 130 fathoms 11 inch pitwork, and other machinery, plant, and appliances.

The above is now offered to the public in consequence of Chancery proceedings between the former owners, and the purchaser will have the benefit of the latter's outlay.

The pumping charges would be light, and with a moderate capital it is believed the Mines would yield good returns.

Apply to Mr. GEORGE TREWEEK, St. Ives, Cornwall.

### STONE QUARRIES TO BE LET.

THE HASLINGDEN (LANCASHIRE) FLAG AND SLATE QUARRIES.—The LEASE of these celebrated COPYHOLD QUARRIES belonging to his Grace the Duke of Buccleuch, having expired, they are now TO BE LET. There is an abundance of virgin rock as yet untouched. The flags, curbs, and blue setts here produced are in great demand by numerous corporations and local boards throughout the country. The quarries are connected with the Lancashire and Yorkshire Railway by spacious private sidings. For particulars apply to H. H. BOLTON, Newchurch-in-Rosendale.

### TO COLLIERY OWNERS, &c.

THE DIRECTORS of the BARNSELY GAS COMPANY hereby INVITE TENDERS from parties willing to contract to SUPPLY and DELIVER into the Retort Houses at their Works, situate at Old Mill and Pontefract-road, Barnsley, respectively, any quantity not exceeding 12,000 tons per annum of

#### SCREENED SOFT COAL, NUTS, or PEA NUTS.

Of respectively the best quality, suitable for Gas Making, that they may require for a period of one, two, or three years, as may be agreed upon, from the 1st day of October, 1885.

The said coal, &c., to be delivered in a dry condition, free from dirt, shale, pyrites, or other impurities, at either of the said Works, in such quantities and at such time as the Manager may direct. There are railway sidings into both works.

Sealed tenders, stating respectively the price of Coal or Nuts, delivered as above, endorsed "Tenders for Coal, &c.," and addressed to the Chairman, must be left at the Gas Company's Office, on or before Thursday, the 2nd July.

Any further information required may be obtained on application to the undersigned.

The Directors do not bind themselves to accept the lowest or any tender.

By Order, JOHN HUTCHINSON, Manager.

Gas Offices, Pontefract-road, Barnsley, June 18th, 1885.

### TO CAPITALISTS—A SAFE INVESTMENT.

WANTED, about £30,000, TO COMPLETE THE DEVELOPMENT OF the SANTA RITA MEXICAN SILVER MINE, in which about £75,000 have been spent by the present owners. Estimated net profits, £120,000 per annum.

N.B.—Any person or syndicate willing to find this amount will be secured by first mortgage on the property until repayment, and thenceforth will have a continuing interest in the mine.

Full particulars can be obtained from WILLIAM ARDUBNOT, Esq., Union Club, Trafalgar-square, S.W.; or Messrs. LE BRASSEUR and OAKLEY, Solicitors, 12, New-court, Lincoln's-inn, W.C.

### THE BORROWDALE PLUMBAGO MINES,

CUMBERLAND.

TO BE SOLD, BY PRIVATE TREATY, the unexpired term of 35 years in the above old and celebrated Mine.

For further particulars, apply to WM. HOPES HEELIS, Solicitor, Hawkshead, Ambleside; or to E. T. HARGRAVES, Esq., 18, Southwark-street, London Bridge, London, S.E.

### STANDARD ORE CRUSHER—UNIVERSAL PULVERISER.

FOR SALE, the STANDARD ORE CRUSHER, 12 x 6, with Elastic Steel Connecting Rod.

Also, ONE 20 inch UNIVERSAL PULVERISER. Will reduce to powder any refractory material, wet or dry, Tin Ores, Quartz, &c.

Apply,—

C. E. HALL, STANDARD IRONWORKS, SHEFFIELD.

### IMPORTANT TO MINE OWNERS.

NEW PAIR of 11 inch cylinder VERTICAL ENGINES FOR SALE at a low price, suitable for Pumping, Hauling, or Winding.

WARSOP AND HILL, NOTTINGHAM.

SECOND-HAND PORTABLE, SEMI-PORTABLE, AND VERTICAL ENGINES. Several 4, 5, 6, 7, 8, 9, and 10-horse power in a thorough state of repair and first-class working condition, TO BE SOLD CHEAP.

N.B.—New Engines, of all sizes, from 1½ H.P. to 200 H.P. at reduced prices, in stock or in progress of manufacture.

Apply to ROBESY and Co., Engineers, Globe Works, Lincoln.

AGENTS WANTED TO PUSH FIRST-CLASS MACHINERY OILS commanding a large and successful sale. Liberal commission.

Address, "Box 22," Post Office, Liverpool.

## THE MONTANA COMPANY (LIMITED).

### REDEMPTION OF DEBENTURES.

To the Debenture-holders of the Montana Company (Limited). Notice is hereby given, that the Company intend at the expiration of six months from this date, that is to say, on the 24th December, 1885, to PAY OFF ONE-HALF of the DEBENTURES of the Company, dated 24th March last, and to be redeemed will, in accordance with the conditions endorsed thereon, be determined by a drawing to be held at the Company's office, on the 1st December, 1885, in the presence of one or more of the Trustees of the Debenture-holders. The numbers of the Debentures so drawn will be published in the Times and Standard newspapers on the 4th December, 1885, or can be ascertained on enquiry at the Company's office on or after that day.

The above notice is given in compliance with the conditions endorsed on the Debentures, but Debenture-holders are hereby informed that the Directors, having funds in hand available for the purpose, are prepared on or at any time after the 31st July next, to pay to any Debenture-holder willing to accept the same, the sum of £10 on each Debenture held by him, with interest to date of payment. Every Debenture-holder accepting this offer will remain entitled until the 29th September next to the option given by the 9th condition endorsed on the Debentures, to have issued to him fully-paid Shares in respect to the remaining 50 per cent. of the amount of each Debenture held by him. Any Debenture-holder desiring to avail himself of this offer is invited to communicate with the Board on or before the 15th July next.

By order,

THOMAS NEAL, Secretary.

4, King William-street, London, E.C., 24th June, 1885.

## COMPANIA "EL CALLAO," GUAYANA, VENEZUELA.

32,200 SHARES.

Gold in bars produced in the month of May, 1885, and remitted to Messrs. Baring Brothers and Co., London—7032.4 ozs.

DIVIDEND distributed per share, 8 francs.

(Signed) P. ARISTEGUIETA, Vice-President.

(Signed) VICTOR J. GRILLET, Treasurer.

## THE NEW CHILE GOLD MINING COMPANY (LIMITED).

Notice is hereby given, that the HALF-YEAR'S INTEREST, due 30th of June next on the Debentures of the old company, will be PAID by the National Bank of Scotland, Nicholas-lane, Lombard-street, E.C.

The Coupons must be left three clear days for examination 19th June 1885.

### TIN MINE.

## YEOLAND CONSOLS (LIMITED).

This company, having fully demonstrated the great value and richness of their property, have instructed their Brokers to OFFER to the PUBLIC the BALANCE of the ORDINARY SHARES, in order to work the mine to its full capacity.

Regular monthly returns are now being made of the best quality of refined tin. No steam power is required, as the River Meavy, which runs through the sett, is utilised for working a powerful turbine, driving 28 stamps and dressing machinery, thus giving this property great advantages over mines where steam is the only motive power. A railway station on the property affords unusual facilities for transport.

With the proposed additional capital the Directors feel assured this mine will soon rank with the best tin mines in the country.

## CHARLESTOWN FOUNDRY AND IRONWORKS COMPANY (LIMITED).

ENGINEERS AND IRONFOUNDERS, CHARLESTOWN, CORNWALL.

Best makers of Horizontal and Beam Engines, Cornish and other Boilers, Mining and Claywork Machinery, Water Wheels, specially chilled Railway and Tram Wheels, Hammered Shafts of first quality Iron for Mines, Clayworks, and Steamships, Tin Dressing Machinery, Williams's and other Buddies, Steel-faced Shovels, Miners' Picks, &c.

Improved Ships' Windlass Purchases, Pumps, Crab Winches, Stoves, and every description of Founder's work in Cast and Wrought Iron and Brass.

IRONMONGERS SUPPLIED AT TRADE PRICES.

Plans, Specifications, and Estimates on application to the Secretary, WALTER J. NICHOLLS.

### PIT SINKING, WINDING COAL, PUMPING, &c.

PORTABLE STEAM ENGINE FOR SALE, 25-horse power, with or without link motion reversing gear; a 14-horse power Ditto, also gear to wind and pump.

A 2 H.P. VERTICAL STEAM ENGINE, with link motion reversing gear (winding drum if required).

A 6 ft. pan MORTAR MILL, VERTICAL ENGINE, and BOILER combined, on carriage and travelling wheels.

Apply to—

BARROWS AND STEWART, ENGINEERS, BANBURY.

AGENT WANTED, with best references, for the SALE OF CHEMICAL APPARATUS, and Utensils of Special Make. Those in connection with chemical works, manufacturers of metallurgy, foundries, and sugar refineries, please address, FRANZ HUGESCHOFF's Chemical and Physical Establishment, Leipzig, Germany.

### MEXICO.

MR. HARRY BIRT, MINING ENGINEER, Assoc.M.Inet.C.E., is proceeding to Mexico to INSPECT and REPORT ON MINES there. He will be glad to undertake further inspections on reasonable terms.

Address—4, The Sanctuary, Westminster.

MR. BRENTON SYMONS, F.C.S., Assoc.Mem.I.C.Eng., who is now leaving for the Western States of America, OFFERS his SERVICES to REPORT ON MINERAL PROPERTIES, or to prepare surface and underground plans and sections of mines. Specialities—Gold, Silver, Copper. Fee for inspection and report 100 guineas.

Apply 7, Jeffrey-square, London, E.C.

WANTED, for the Transvaal, a MINING ENGINEER, thoroughly competent to erect Machinery and supervise the Extraction of Gold.

Address, stating salary, and enclosing copies of testimonials, to "X. Y. Z.," MINING JOURNAL Office, 26, Fleet-street, London.

METALLURGICAL CHEMIST (F.I.C.) desires a RE-ENGAGEMENT preferably as senior assistant with an analyst or to take charge of a laboratory. Twelve years experience, iron, steel, and general metallurgical analysis. Special experience in copper, sulphur and gold.

Address "Caprum," care of J. W. Vickers, 5, Nicholas-lane, E.C.

MECHANICAL MINER will be shortly OPEN to ENGAGEMENT. Proficient in Rock-drilling, Automatic Ore Dressing, Pumping, Winding, &c. Five years' experience in Copper Smelting abroad. Speaks English, French, and German. Highest testimonials and references.

Address, "Mechanical Miner," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

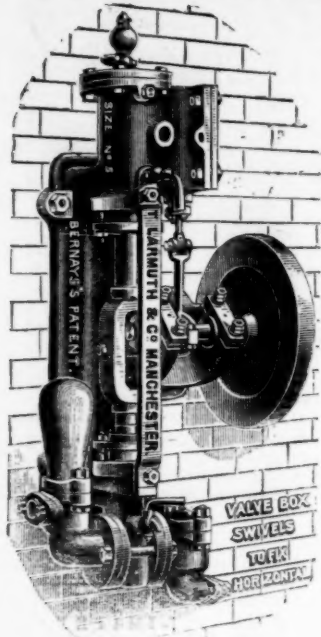
### MEXICO.

JOHN PETHERICK, a Cornish Mining Engineer, after a visit to this country for his health, is about to return to that Republic, and is prepared to INSPECT, SURVEY, and faithfully REPORT ON Mining or other Properties on reasonable terms.

Having had over 18 years' experience in the country, he is consequently able to give an opinion likely to be of value to those who may honour him with their commission.

Present Address: St. Agnes, Cornwall. After the 28th February, all communications to be sent to Pachuca, Mexico, via New York and El Paso.

# T. LARMUTH & CO., SALFORD, MANCHESTER.



Sole Makers of  
Bernays's Patent **STEAM PUMPS**

Direct Acting with Fly Wheels.

**SIMPLE.  
EFFICIENT.  
RELIABLE.**

Ram Pumps for Feeding Boilers.  
Double Acting Pumps for all purposes

ESTIMATES ON APPLICATION  
FOR

Pumps for Mining or other work of any capacity.

PRICES OF SINGLE-ACTING RAM PUMPS, VERTICAL OR HORIZONTAL.

No.	1	2	3	4	5	6	7
Steam cylinder .....	2½ in.	3½ in.	3½ in.	4½ in.	5½ in.	6 in.	7 in.
Diameter of ram.....	1½ in.	1½ in.	2 in.	2½ in.	3 in.	3½ in.	4 in.
Length of stroke.....	3 in.	4 in.	4 in.	6 in.	7 in.	8 in.	8 in.
Gallons per hour.....	180	280	370	700	1060	1560	2100
Price with brass cased ram .....	£10	£12	£15	£20	£24	£28	£33

THE

LARMUTH  
and  
HOWARTH'S  
PATENT.



**"HIRNANT"  
ROCK DRILL.**

The Best and Cheapest Drill  
in the Market, and the most  
Economical in Power, and  
of Greater Durability than  
any other.

High and Slow Speed  
Air Compressors.

Rock Drill  
Carriages,  
Engineers'  
Tools, &c.

Price Lists, and

every information  
on application.

## SAMUEL OSBORN AND CO.,

MANUFACTURERS OF TOUGHENED

## CRUCIBLE STEEL CASTINGS

Of all descriptions of special strength and solidity.

ALSO, MANUFACTURERS OF

BEST CAST STEEL FOR ENGINEERS AND MINERS' PURPOSES; FILES SAWS; HAMMERS; RAILWAY SPRINGS, &c.

STEEL SHEETS AND FORGINGS.

SOLE MAKERS OF

R. MUSHET'S CELEBRATED EXTRA BEST

## TITANIC CAST STEEL FOR BORERS,

And of R. Mushet's Special Steel for Lathe and Planing Tools and Drills,  
THE STEEL WHICH REQUIRES NO HARDENING.

## CLYDE STEEL AND IRON WORKS, SHEFFIELD.

JOHN SPENCER, Globe Tube Works, WEDNESBURY.

## TUBES

or Coated by Dr. A. SMITH'S process. GUN METAL and IRON COCKS and VALVES. COILS of all descriptions up to 500 ft. without joint. TUBES kept in Stock up to 6 inches diameter.

LONDON OFFICE AND WAREHOUSE: 3, QUEEN STREET PLACE, E.C.



MANUFACTURER OF  
WROUGHT IRON TUBES and  
FITTINGS for Gas, Steam, and  
Water; also HYDRAULIC and  
COMPRESSED AIR TUBES, Gal-  
vanised, White Enamelled inside,



## PERFORATED SHEET METALS

FOR  
TIN, LEAD, AND COPPER MINES,

MILLERS BREWERS, AND

MALSTERS,

COLLIERIES, AND

QUARRIES,

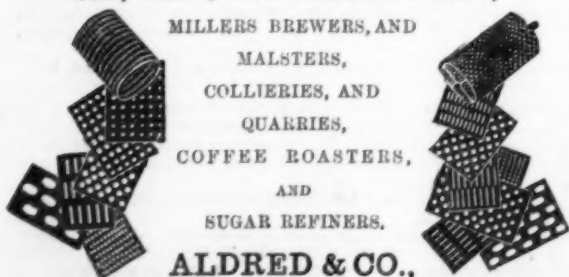
COFFEE ROASTERS,

AND

SUGAR REFINERS.

**ALDRED & CO.,**

WORKS: PARKER STREET, ASHLEY LANE,  
MANCHESTER.

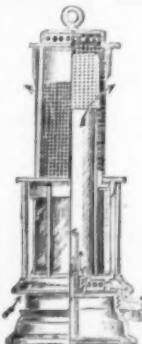


HALF-PRICE—ONE SHILLING POST FREE.

A few copies with the covers slightly soiled of the

**ENGLISH AND FOREIGN MINING GLOSSARY:**  
To which is added the SMELTING TERMS used in FRANCE, SPAIN,  
and GERMANY.

London: Published at the MINING JOURNAL Office, 26, Fleet street, E.C.;  
and all Booksellers.



ESTABLISHED 1820.  
**JOSH. COOKE AND CO.,**  
**SAFETY LAMP**

AND  
GAUZE MANUFACTORY.

Honourable Mention, Paris Exhibition, 1878

Illustrated Price Lists free, by post or otherwise.

**MIDLAND DAVY LAMP WORKS,**

Belmont Passage, 203, Lawley-street,

**BIRMINGHAM.**

Makers of Williamson's Double Safety Lamp,  
Williamson's Patent Double Safety Lamp shown half in  
section.

Medal—For Improved Invention—London, Kensington, 1874  
Ditto—Excellence of Workmanship—Wrexham, 1867.

**THE COLLIERY READY-RECKONER AND WAGES**

By **JAMES IRELAND**

"Will be the means of preventing many disputes between pay clerks and  
colliers."—*Mining Journal*.

To be had on application at the MINING JOURNAL Office, 26, Fleet-street, E.C.

**M. P. S. HAMILTON** (late Chief Commissioner of Mines for  
the Province of Nova Scotia), PRACTICAL GEOLOGIST, MINING  
AGENT, and MINING ENGINEER, HALIFAX, NOVA SCOTIA.  
PURCHASES and SALES of MINING PROPERTY effected, with careful re-  
gard to the interests of clients.

## QUICKSILVER-WAVE AMALGAMATOR.

A PURELY MECHANICAL AND AUTOMATIC PROCESS  
treating Gold Ores direct from the Stamps or Pulverisers, and  
superceding the use of Copper Plates, Blankets, &c.

One Amalgamator will treat 10 tons per 24 hours; size, with frame,  
9 ft. x 3½ ft.; weight, under 15 cwt.; power, only ½ H.P. necessary;  
quicksilver required, 120 lbs. only. Cost of treatment, 3d. to 1s. per  
ton of ore.

Price of Amalgamator (ready for immediate use), £100 f.o.b., a  
further sum of £150 at end of six months—i.e., after approval—or  
£100 then and a further £100 twelve months thereafter. (On royalty  
if preferred.)

Amalgamators have been in practical use for upwards of one year.  
They save 85 to 95 per cent. of gold, free, or with sulphurets (using  
Frue Vanners or other concentrators for all ores with sulphurets).

**QUICKSILVER-WAVE AMALGAMATOR CO. LIMITED.**

Offices and Works: 17, Wharf-road, City-road, E.C.

N.B.—This process has the highest percentage of saving and,  
moreover, is the cheapest and most rapid.

**THE CANADA PACIFIC IRON AND STEEL RAIL**  
**COMPANY.**

The Subscriber is desirous of opening communication with some  
party in England for the purpose of organising the above company.

One thousand acres of red hematite ore not far from the line of  
the C. P. R.

Address, HUBERT C. JONES, Solicitor, Brockville, Ontario Canada

**LE MOUVEMENT INDUSTRIEL BELGE: REVUE**  
**TECHNIQUE, COMMERCIALE ET INDUSTRIELLE, sous la direction**  
**de M. l'ingénieur P. DESGUIN. Parait le Vendredi de chaque semaine.**  
Il contient des articles d'actualité sur l'Agriculture, la Navigation, les Mines,  
la Construction, les Machines, les Chemins-de-fer, les Canaux, les Travaux  
Publics, le Droit Industriel et Commercial, les Inventions, et les Perfectionne-  
ments, et principalement sur

**L'EXPOSITION INTERNATIONALE D'ANVERS**  
dont il publie les plans, les dessins et documents de tous genres.

**TEXTE ILLUSTRÉ DE BELLES GRAVURES.**

Abonnements annuels:—Belgique, 25 francs; Union postale, 30 francs.  
S'adresser à l'Administration, Rue des Croisades 32, à Bruxelles.

**HERBERTON (WILD RIVER) TIN LODES, NORTH**  
**QUEENSLAND.**

Every information relative to the progress of lode-tin mining in the Wild  
River district (termed by geologists "The Cornwall of Australia") can be ob-  
tained by communicating with the undersigned. **CHARLES JENKIN.**  
"Herberton Advertiser" Office Herberton, September, 1882.

**THOMAS TURTON & SONS,**  
Manufacturers of

**CRUCIBLE CAST STEEL,**

**SHEAR, BLISTER, & SPRING STEEL,**

**CAST STEEL FILES, EDGE TOOLS, HAMMERS, PICKS,**

AND ALL DESCRIPTIONS OF

**TOOLS FOR MINING & ENGINEERING PURPOSES.**

**Railway Carriage, Wagon, & Locomotive**

**SPRINGS & BUFFERS,**

**Sheaf Works & Spring Works.**

**SHEFFIELD.**

LONDON OFFICES:—90, CANNON STREET, E.C.

## MINING MACHINERY, MILLING MACHINERY

Of the **MOST APPROVED AMERICAN PATTERNS.**

### GOLD MILLS.

The California pattern of Gold Stamp Mill is universally accepted as the most perfect, economic, and efficient made.

We have over 1000 stamps in successful work in the various Western Gold Districts of the U.S. in Central and South America, Mexico, and Hungary.

### SILVER MILLS.

Silver amalgamation in Pans is essentially an American system evolved after years of work on the rich silver mines of Nevada.

We have over 600 Stamps, with necessary pans, settlers, roasting furnaces, &c., all of our own manufacture, at work in different silver camps of the United States, Mexico, and South America, Phillipine Islands, Asia, Chile, and Central America.

### CONCENTRATION MILLS

Of the most approved German pattern and arrangement, or with Stamps and Frue Vanner Concentrators for low grade silver ores, light in lead. We have over 20 large German pattern mills at work on lead, zinc, or copper ores, and numerous Vanner mills on ores never before successfully concentrated.

Notably among the large Concentrating Works built by us we mention ANACONDA WORKS, Montana daily capacity 750 tons of copper ore.

Mining Pumps, Cornish pattern, of the largest sizes. Hoisting Engines, from 4 h.p. up to the largest direct-acting engines to sink 3000 feet.

### SMELTING WORKS.

We have 80 Water Jacket Smelting Furnaces in use from 30 in. circular up to 33 in. by 80 in. for copper, lead, and silver smelting. Special High Jacket Furnaces for copper ores.

Engines, plain slide valve, Corliss or compound Corliss Boilers. Leaching Mills, Hallidie Wire Rope Tramways. White, Howell, Bruckner, and Stetefeldt Roasting Furnaces, &c.

We have had twenty years experience in the manufacture solely of MINING MACHINERY, and have special facilities for shipping to all foreign parts through our New York Office, where all details of clearance, shipment, and insurance are conducted. Our machinery is already well known in Mexico, Peru, Chili, Venezuela, Honduras, and other South American countries.

Correspondence solicited. Descriptive Circulars and Catalogues on application.

## FRASER AND CHALMERS.

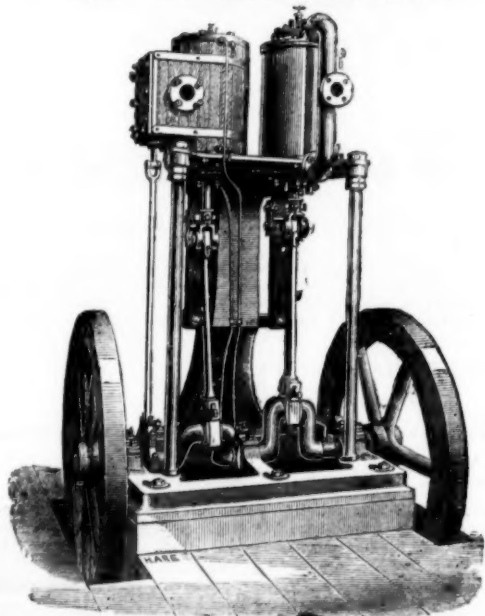
PRINCIPAL OFFICE AND WORKS.

FULTON AND UNION STREETS, CHICAGO, ILL., U.S.A.

### BRANCH OFFICES.

No. 2, WALL ST., NEW YORK. 248-18TH STREET, DENVER, COL. No. 11, CALLE DE JUAREZ, CHIHUAHUA, MEX.

## THE "Champion" Rock-borer AND AIR COMPRESSOR.



As an instance of the actual work done by this Machinery in various kinds of ground, some of it the hardest rock, it may be mentioned that in Cornwall, irrespective of the work performed by the "Champion" Rock-borers and Air-compressors purchased by various Mines, the drivage, rising, sinking, and stoping done by contract by the Proprietor with his own Machinery now amounts to over 1500 fathoms.

Several of these Air-compressors, ranging from 3½ to 12 tons in weight may be seen in constant work in the Camborne Mining District.

### R. H. HARRIS,

ENGINEER,

63, QUEEN VICTORIA STREET, LONDON.

PHILLIPS MONTHLY MACHINERY REGISTER,—  
THE BEST MEDIUM IN THE KINGDOM

FOR THE  
PURCHASE OR SALE

OF  
NEW OR SECONDHAND MACHINERY

Subscription, 4s. per annum, post free.

PUBLISHED AND PROPRIETOR,  
CHARLES D. PHILLIPS, NEWPORT, MON.

## REDUCTION IN PRICES.

**CLAYTON AND SHUTTLEWORTH,**  
STAMP END WORKS, LINCOLN, AND 78, LOMBARD STREET, LONDON.

Begin to announce an Important Reduction in the price of their Portable Steam Engines and Thrashing Machines, and will be pleased to send their Revised List to any address on application.



GOLD MEDAL AND FIRST CLASS CERTIFICATE at the  
Calcutta International Exhibition 1883-4.

THE ONLY GOLD MEDAL

AWARDED FOR

PORTABLE STEAM ENGINES.

### Steam Engines, portable & fixed,

For Coals, Wood, Straw, and every kind of Fuel.

OVER 22,500 SOLD.

### Thrashing Machines.

OVER 20,500 SOLD.

### Straw, Corn, and Hay Elevators.

### Chaff Cutters for Steam Power.

### Grinding Mills.

### Saw Benches.

### Traction Engines, &c.

GOLD MEDALS AND OTHER PRIZES have been awarded to  
CLAYTON AND SHUTTLEWORTH at all the important  
International and Colonial Exhibitions, including

LONDON, 1851 and 1862;

PARIS, 1855, 1867, and 1878

VIENNA, 1857, 1866, and 1873.

The Royal Agricultural Society of England have awarded Every First Prize to CLAYTON and SHUTTLEWORTH for Portable and other Steam Engines since 1863, and Prizes at every Meeting at which they have competed since 1849.

CATALOGUES IN ENGLISH AND IN ALL EUROPEAN LANGUAGES.

## POTENTITE.

This unrivalled Explosive, as manufactured by the New and Perfected Machinery of the Company, is perfectly safe for transit, storage, and use, and is employed in every description of Mining or Quarrying Work, for Tunnelling, Pit Sinking, Engineering Work, and Submarine Operations, with the most complete success and satisfaction.

Potentite does NOT contain its own MEANS OF IGNITION, is free from Nitro-Glycerine, and its SAFETY has been specially demonstrated by public experiments.

Its strength is unequalled.

Its action is certain.

In action it gives off neither flame, smoke, nor offensive smell. By its use labour is economised, as work can be resumed immediately after the shot is fired.

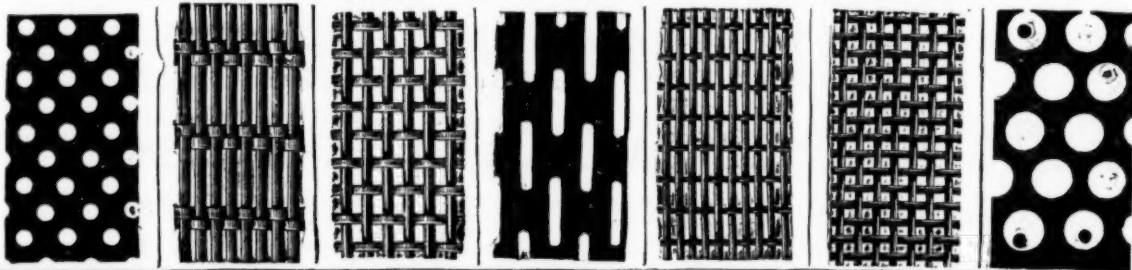
POTENTITE is specially adapted for export to hot climates, as it is unaffected by heat, and is free from dangerous exudations.

POTENTITE IS THE SAFEST STRONGEST, AND WORK FOR WORK, CHEAPEST EXPLOSIVE IN THE MARKET.

For particulars and prices, apply to—

## THE POTENTITE COMPANY, LIMITED.

HEAD OFFICE—3, FENCHURCH AVENUE, LONDON, E.C.



Extra Treble Strong Wire Cloth and  
Perforated Metals in Steel, Iron, Cop-  
per, Brass, Zinc, Bronze.

Made in all Meshes and Widths.

**N. GREENING & SONS, Limited,**  
Wire Manufacturers and Metal Perforators,  
**WARRINGTON.**

Jigger Bottoms, Trommels, Cylinder  
Covers, Riddles, Sieves for Diamond,  
Gold, Silver, Copper, Lead and Tin Mines.

Samples and Prices free on application.

## BRITISH AND FOREIGN SAFETY FUSE COMPANY,

WORKS: REDRUTH, CORNWALL,

MANUFACTURERS OF

## PATENT SAFETY FUSE FOR ALL KINDS OF BLASTING PURPOSES,

For MINING & RAILWAY OPERATIONS,

ALSO FOR

## ALL KINDS OF SUBMARINE WORK.

This FUSE is made for ALL CLIMATES, and of any length and sufficient  
water-resisting properties to ensure ignition at any depth.

For PRICE LISTS, SAMPLES, &c., apply at the Works, or

LONDON OFFICES—3 and 4, Adelaide Place, King William Street, London Bridge, E.C.

TRADE MARK,—TRICOLOUR COTTON (Red, White, and Blue), running through the column of Powder.

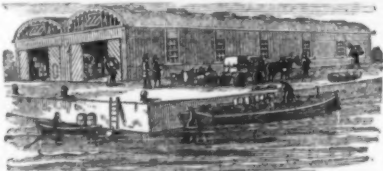


## GALVANISED IRON AND ZINC ROOFS AND BUILDINGS. FRANCIS MORTON AND CO., LIMITED.

ESTABLISHED OVER THIRTY YEARS.

The system adopted by F. M. and Co. in the Construction of their Galvanised Corrugated Iron and Zinc Buildings combines many advantages which no other form of building can offer. At a minimum cost they provide every required accommodation, while the construction secures great strength and durability, together with protection against fire. Illustrated Catalogues and Estimates sent on application, when Purchasers should supply full particulars of requirements.

WROUGHT IRON ROOF PRINCIPALS,  
GIRDERS, AND GENERAL WROUGHT IRON  
WORK.



GENERAL STORE FOR WHARF, &c.  
Naylor St. Iron Works, Liverpool.

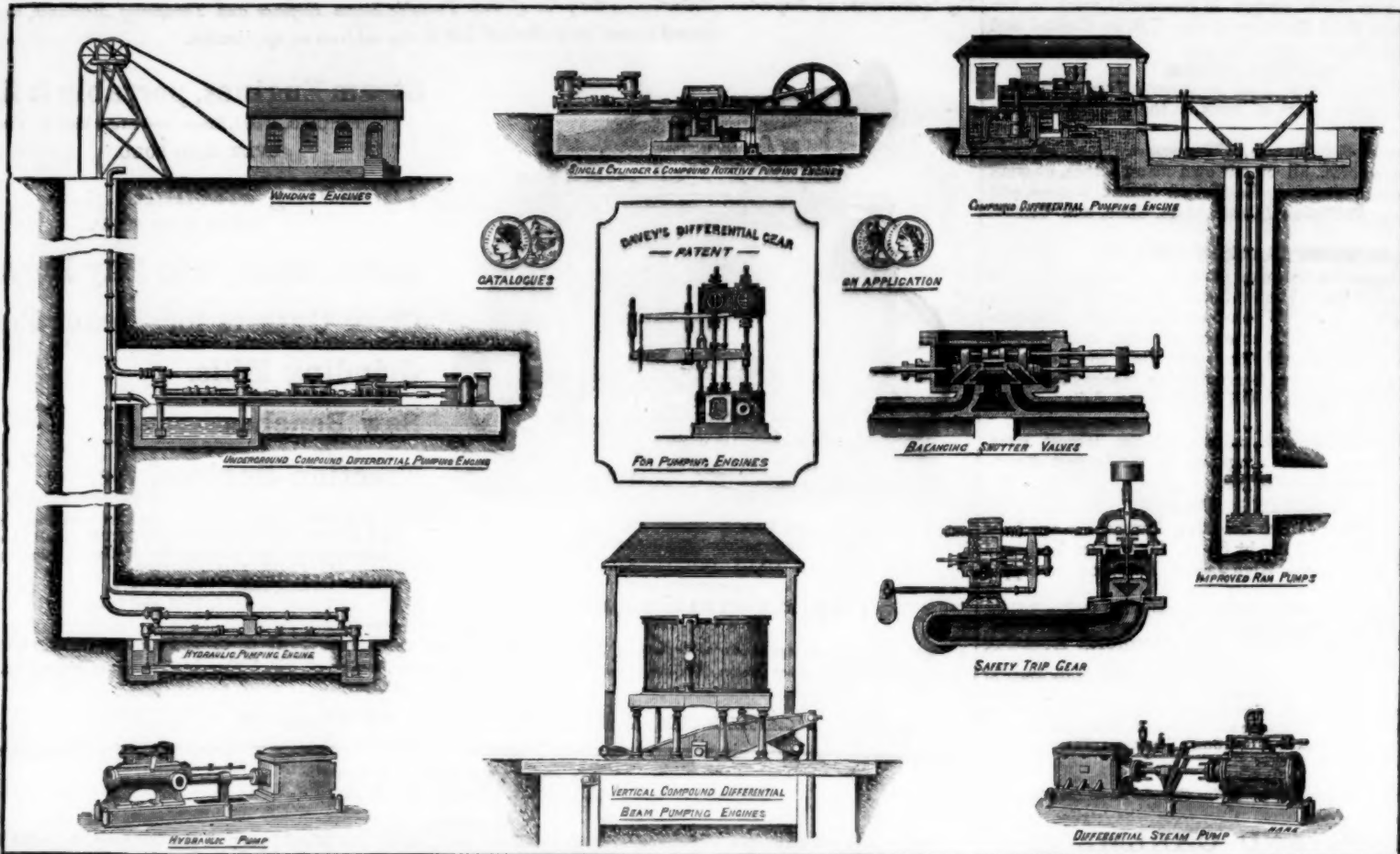


OPEN SHED FOR COVERING LARGE AREAS.  
London Office: 9, Victoria Chambers, Victoria St., Westminster, S.W.

# HATHORN, DAVEY & CO.,

See Exhibits at Stand No. 1195, West Annexe; and also in the Electric Lighting Department, Inventions Exhibition, London.

PUMPING  
MACHINERY.



MINING  
MACHINERY.

## SUN FOUNDRY, LEEDS.

## BELL'S ASBESTOS.

THE LATEST DEVELOPMENTS IN ASBESTOS.

### Bell's Asbestos Metallic and India-Rubber Woven Sheeting

A Jointing Material possessing many times the Tensile Strength of anything hitherto manufactured for the purpose.

The Asbestos and India-rubber Woven Sheeting, introduced by us some years ago, has proved so great a success that all the manufacturers of Asbestos in this country and on the Continent have imperfectly imitated it. That material, though superior to everything previously introduced for many kinds of Steam Joints, does not bear the strain put upon it in some cases, and therefore in order to meet the requirements of every class of steam user, a superior article is now offered to the public. The improvement consists in the manufacture of a fabric composed partly of finely spun Asbestos Yarn, and partly of a fine Wire of suitable alloy to impart great tensile strength, retainable under the highest temperature, and rendering the material capable of resisting the highest pressures hitherto attained. A sheet of 1-ply will serve where 2-ply of the Asbestos Woven Sheeting without wire are necessary.

### BELL'S ASBESTOS METALLIC AND INDIA-RUBBER WOVEN TAPE

The material above described is made up in the form of Tape for Cylinder Covers, Manhole and Mudhole Joints, &c. All liability to breakage is overcome by the introduction of Wire in the manufacture.

### BELL'S ASBESTOS METALLIC CLOTH PACKING.

This material is equally suitable for high or low pressures. By this special combination of Asbestos and Metal, friction is reduced to a minimum, and as a heat-resisting packing it is perfect. The introduction of wire serves as a binder to the Asbestos, and prevents its fraying away by the friction of the moving parts. This Packing may be used in either wet or dry steam. It possesses the greatest elasticity, strength, and durability ever attained in steam packing, and is the surest remedy for worn glands and uneven rods.

### CAUTION.

These three materials are manufactured under the Turner-Bell Patent, and the Rights will be Strictly Protected by Legal Proceedings against all Infringers.

### ASBESTOLINE

—THE BEST LUBRICANT FOR ALL KINDS OF MACHINERY ASHORE OR AFLOAT.—

**2/3 Per lb.**

1 LB. EQUAL TO 2 GALLONS OF BEST OIL

### CAUTION.

These three materials are manufactured under the Turner-Bell Patent, and the Rights will be Strictly Protected by Legal Proceedings against all Infringers.

ILLUSTRATED PRICED CATALOGUE FREE ON APPLICATION TO  
**BELL'S ASBESTOS WORKS, SOUTHWARK, LONDON, S. E.**

OR THE DEPOTS—118a, SOUTHWARK STREET, S.E.,

Victoria Buildings, Deansgate, MANCHESTER.


11 and 13, St. Vincent Place, GLASGOW.

46, James Street, Bute Docks, CARDIFF.

21, Ritter Strasse, BERLIN.

# NOBEL'S DYNAMITE



Manufactured  and sold by  
**NOBEL'S EXPLOSIVES COMPANY, LIMITED**  
 (FORMERLY THE BRITISH DYNAMITE COMPANY LIMITED),  
 Head Office: 149, West George Street Glasgow.  
 EXPORT AGENTS: JAMES THORNE AND CO., 85, GRACECHURCH STREET, LONDON, E.C.  
 FACTORIES—ARDEER WORKS, STEVENSTON, Ayrshire.  
 WESTQUARTER WORKS, POLMONT STATION, STIRLINGSHIRE.  
 REDDING MOOR WORKS, POLMONT STATION, STIRLINGSHIRE.

## TONITE, OR COTTON POWDER,

IS RECOMMENDED TO CONTRACTORS, MINERS, PIT SINKERS, QUARRYMEN, AND OTHERS, AS BEING  
 THE SAFEST, CHEAPEST, AND STRONGEST OF ALL EXPLOSIVES  
 TONITE is the most efficient and economical blasting agent ever invented, and is largely in demand. It does not contain any  
 Nitro-glycerine, and is, therefore, exempt from the dangers of exudation, or of freezing and its attendant process of thawing.  
 The Company manufacture

### PATENT DETONATORS

of a quality much superior to the foreign article. Also supply Safety Fuse and Electric Firing Appliances of best description.  
 The trade supplied on favourable terms.

ADDRESS—THE COTTON POWDER COMPANY (LIMITED)  
 23, QUEEN ANNE'S GATE, LONDON, S.W.  
 WORKS: FAVERSHAM, KENT.

Agents: DINEEN and Co., Leeds; DAVID BURNS, Haltwhistle; R. J. CUNNACK, Helston, Cornwall; J. and W. SMITH, Chapel-en-le-Frith;  
 W. VEITCH, Jedburgh, N.B. W. HARRISON, Barrow-in-Furness; HUNTER and FOTHERINGHAM, Glasgow.

# DYNAMITE!

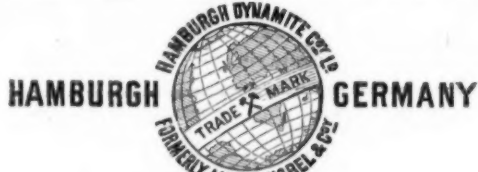
## The Rhenish Dynamite Company

Are prepared to supply their celebrated Dynamite, of the highest quality and greatest strength allowed by the  
 Explosives Act.

### OFFICES.—

1, Coleman Street Buildings, Moorgate Street, London, E.C.

## NOBEL'S DYNAMITE.



MANUFACTURED AND SOLD BY THE  
**DYNAMIT-ACTIEN-GESELLSCHAFT**  
 VORMALS ALFRED NOBEL & CO., HAMBURG.  
**(HAMBURG DYNAMITE COMPANY, LIMITED),**  
 Formerly ALFRED NOBEL & CO.

Factories { KRÜMMEL AND SCHLEBUSCH, IN GERMANY.  
 ZAMKY AND PRESBURG, IN AUSTRIA HUNGARY.

London Office: EASTCHEAP BUILDINGS, 19, EASTCHEAP, E.C.

Medals—  
 LONDON, 1862.  
 CHILI, 1875.  
 PARIS, 1878.

Silver Medal  
 MELBOURNE,  
 1880.  
 HIGHEST  
 AWARD.

ESTABLISHED 1848.  
**W. BRUNTON & CO.,**  
 35, QUEEN VICTORIA ST., LONDON,  
**SAFETY FUSE MAKERS.**

WORKS:  
 PENHELICK SAFETY FUSE WORKS, CAMBRIAN SAFETY FUSE WORKS,  
 REDRUTH. WREXHAM.  
 SAFETY FUSE OF ALL DESCRIPTIONS SUPPLIED IN ANY LENGTH REQUIRED.

Original Inventors  
 of  
 Guttapercha Fuses.

Brunton's  
 Taped Guttapercha  
 Safety Fuse is  
 the Best Fuse for  
 use with Dynamite  
 in wet ground.  
 Fits the  
 Detonator without  
 unlapping.

## MACDERMOTT AND GLOVER'S PATENT PERCUSSIVE ROCK PERFORATOR



(IMPROVED)  
 FOR HAND-LABOUR ONLY  
**IN HARD ROCK.**  
 FOR MINES, QUARRIES, AND  
 GOVERNMENT CONTRACT WORK

RATE OF PENETRATION  
 IN GRANITE,  
 1½ to 2 inches per minute.

Price £50 complete

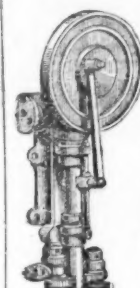
For full particulars, apply to

**GLOVER & HOBSON,**  
 ENGINEERS & MILLWRIGHTS,  
 ALBERT IRONWORKS, ST. JAMES'S ROAD, OLD KENT  
 ROAD, LONDON, S.E.,  
 SOLE MANUFACTURERS; OR TO—  
**M. MACDERMOTT, 25 and 26, Pudding Lane, London.**  
 N.B.—A machine can always be seen at work (without notice) at the Albert  
 Ironworks. [TELEPHONE 4684.]

## ALEX. WILSON & CO.

VAUXHALL IRONWORKS,  
 LONDON, S.W.,

MANUFACTURERS OF  
**THE VAUXHALL DONKEY PUMPS.**  
**THE EXCELSIOR DIRECT-ACTING  
 PUMPS.**



**Air Compressors.**  
**Winding Engines.**  
**HOISTING MACHINERY.**

ILLUSTRATED AND PRICED CATALOGUES ON APPLICATION.

THE  
**BEST METAL FOR BUSHES,  
 BEARINGS,  
 SLIDE VALVES,**

And other wearing parts of Machinery.

PUMPS, PLUNGERS,  
 CYLINDERS, &c.

PHOSPHOR BRONZE  
 WIRE, TUBES  
 SHEET, RODS  
 TOOLS &c.

STEAM  
 FITTINGS

SOLE  
 MANUFACTURERS  
 UNDER PATENTS  
 THE  
**PHOSPHOR BRONZE  
 COMPANY, LIMITED,**  
 SUMNER STREET, SOUTHWARK,  
 LONDON, S.E.

## WILLIAM BENNETTS.

PATENT MINERS'

**SAFETY FUSE  
 MANUFACTURER.**



This manufacture embraces all the latest improvements for use in  
 Blasting in Mines, Quarries, or for Submarine Purposes; and is  
 adapted for exploding Gunpowder, Dynamite, or any other Explosive;  
 and is made suitable for exportation to any part of the world.  
 Price Lists and Sample Cards on application.

All communications to be addressed—

**ROSKEAR FUSE WORKS,  
 CAMBORNE CORNWALL.**



DESCRIPTIVE LISTS WITH  
 TERMS AND SAMPLES ON APPLICATION.

This highly reputed Fuse is in constant demand for  
 every description of Blasting in all parts of the  
 world.

REGISTERED TRADE MARK  
 A RED THREAD RUNNING THROUGH THE CENTRE OF THE FUSE.

THE BLAKE-MARSDEN NEW PATENT IMPROVED STONE BREAKERS AND ORE CRUSHERS.

ORIGINAL PATENTEE  
AND ONLY MAKER**H. R. MARSDEN,**  
**NEW PATENT FINE CRUSHER OR PULVERIZER,**ALSO PATENTEE AND ONLY  
MAKER OF THEFOR REDUCING TO AN IMPALPABLE POWDER, OR ANY DEGREE OF FINENESS REQUIRED,  
**GOLD QUARTZ, SILVER, COPPER, TIN, ZINC, LEAD,**  
AND ORES OF EVERY DESCRIPTIONPATENT REVERSIBLE CRUSHING and CRUSHING  
JAWS, IN FOUR SECTIONS,  
WITH PATENT FACED BACKS, REQUIRING  
NO WHITE METAL IN FIXING.CRUCIBLE CAST-STEEL CONNECTING RODS.  
RENEWABLE TOGGLE CUSHIONS, &c.

OVER 4000 IN USE.

EXTRACTS FROM TESTIMONIALS.  
PULVERIZER.

"I have great pleasure in bearing testimony to the merits and capabilities of your patent combined fine crusher and sieving apparatus. I have tried it on a variety of ores and minerals, and it pulverizes them with equal success. You can put in a small paving stone and bring it out like flour."

"In reply to your favour, I have much pleasure in informing you that the 12x3 Pulverizer we had from you is giving us every satisfaction. The material we are operating on is an exceptionally hard one. I am well satisfied with its working."

"Our experience is that the motion and mechanical arrangements of your machine are the best for pulverizing that we have ever met with."

"The reports from our mines as regards the working of your Fine Crusher (20x5) recently supplied are very favourable, although we cannot quote you exact figures. On being got into position it was tried by hand, with the result that it made short work of the biggest pieces of ore we put into the hopper. You might say how long you would take to deliver another of the same size."

"As I once before stated, your machine is a perfect pulverizer." "I am sure the machine will be a success, and a great one, and there is any amount of demand for such a machine. We can work it with 20 lbs. of steam, and our engine, which is a 12-h.p., plays with the work, in fact we run the Stonebreaker and the Pulverizer both together with 35 lbs."

Also Cement, Barytes, Limestone, Chalk, Pyrites, Coprolite, &amp;c., &amp;c. These Machines are in successful operation in this country and abroad, and reference to users can be had on application.

AWARDED OVER

**60**

FIRST-CLASS GOLD AND SILVER MEDALS.

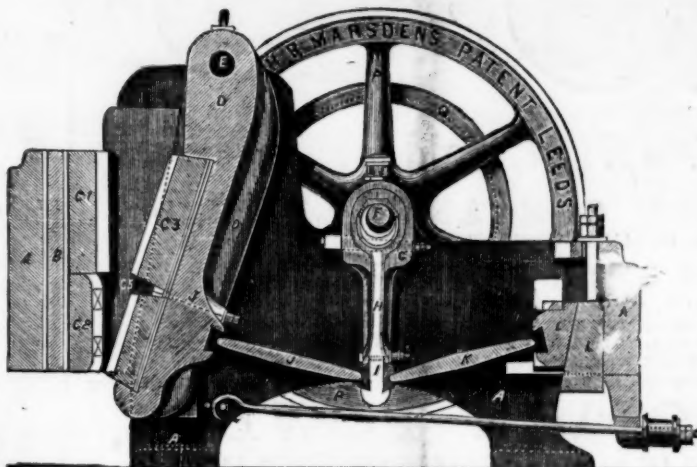
ADOPTED BY THE PRINCIPAL CORPORATIONS, CONTRACTORS, MINING COMPANIES, &amp;c., IN ALL PARTS OF THE WORLD.

ROAD METAL BROKEN EQUAL TO HAND, AT ONE-TENTH THE COST.

## EXTRACTS FROM TESTIMONIALS.—STONEBREAKER.

"I now order Three of your Stone Crushers, size 15 x 10, to be of your very best construction, and to include two extra sets of Jaws and Cheeks for each. The last two 24 x 13 machines you sent me, which are at work in this colony, are doing very well. You will soon find that the railway contractors will adopt your machines in preference to the colonial ones—two of which I have. I know other contractors have had as many as nine of them, which have not given very good satisfaction. Once they know of yours thoroughly, I believe you will do a good trade with the colonies. For reference of the high character of your constructions you can refer to me as having used them with the very best results, both in New Zealand and this colony, and much prefer them to the colonial article, both in point of construction and less liability to go out of order. The material we are crushing is very hard blue stone, for railway ballast purposes. Push on with the order as quickly as possible; I do not think it necessary to have any engineering inspection. I have brought your machines prominently under the notice of all large contractors in this colony, likewise the Government. Many of the contractors have spoken to me in reference to their capabilities, and I could only tell them that they are by far and away the best and most economical I ever used. The very fact of me having purchased now Eleven from you at various intervals and various sizes, and two above 12 years ago, and having tried all the other makers, is sufficient guarantee of the capabilities and the working of your machines. Yours in every way surpasses all others."

"Some of your testimonials do not give your machines half their due. I have seen men hammering away on a big rock for a quarter of a day which your machine would reduce to the required size in a quarter of a minute. I would guarantee that your largest size machine would reduce more of the Cornish tin capels (which is the hardest rock of England) in a day than 200 men, and at 1-25th the cost."



GREATLY REDUCED PRICES ON APPLICATION.

FOR CATALOGUES, TESTIMONIALS, &amp;c., APPLY TO THE SOLE MAKER,

**H. R. MARSDEN, SOHO FOUNDRY, LEEDS.****JOHN CAMERON'S**

FLY-WHEELS ON BOTH SIDES.

SPECIALITIES ARE HIS  
**STEAM PUMPS**  
FOR  
**COLLIERY PURPOSES.**

Specially adapted for forcing Water any height

ALSO, FOR

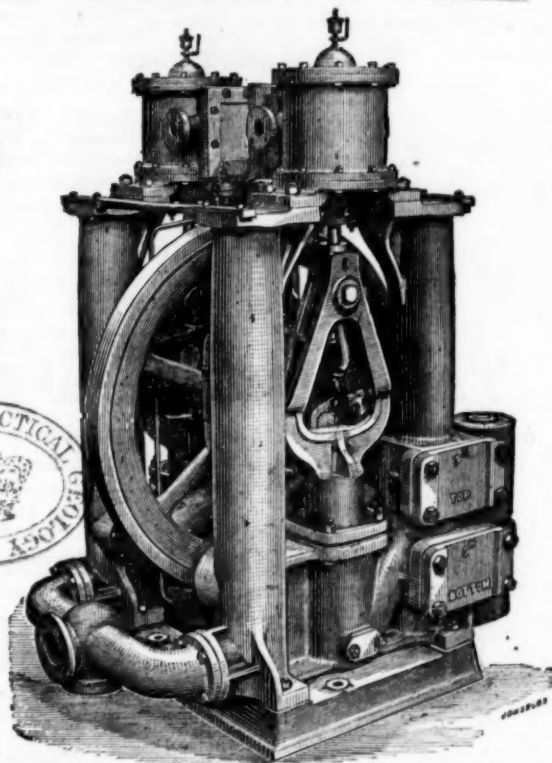
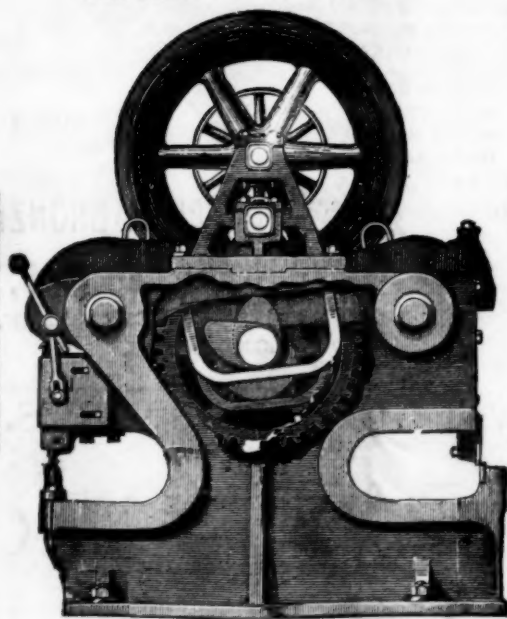
**SINKING, FEEDING BOILERS AND STEAM  
FIRE ENGINES,**

Of which he has made over 9000.

ALSO, HIS

**PATENT CAM AND LEVER  
PUNCHING & SHEARING MACHINES.**Works: Oldfield Road, Salford,  
Manchester.AGENTS { For LONDON and DISTRICT—PRICE and BELSHAM,  
52, QUEEN VICTORIA STREET, E.C.  
For NEWCASTLE and EAST COAST—E. BECKWITH AND CO.,  
BONNERSFIELD, SUNDERLAND.

DISENGAGING APPARATUS



By a special method of preparation this leather is made solid, perfectly close in texture, and impervious to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

**HEPBURN AND GALE, LIMITED,**TANNERS AND CURRIERS,  
LEATHER MILL BAND AND HOSE PIPE MANUFACTURERS,  
LONG LANE, SOUTHWARK, LONDON.Prize Medals, 1851, 1855, 1878, for  
MILL BANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES.

SAMPLES AND PRICE LISTS POST-FREE.

<b>CAMBRIC</b>	Children's 1s. 5d. per doz.	Hemstitched, per doz.
	Ladies' 2s. 6d. "	Ladies' 3s. 11d. "
	Gents' 3s. 6d. "	Gents' 4s. 9d. "

By appointments to the Queen and Crown Princess of Germany.  
**POCKET HANDKERCHIEFS.**  
ROBINSON AND CLEVER, BELFAST.

**THE IRON AND COAL TRADES REVIEW.**  
The IRON AND COAL TRADES REVIEW is extensively circulated amongst the Iron Producers, Manufacturers, and Consumers, Coalowners, &c., in all the iron and coal districts. It is, therefore, one of the leading organs for advertising every description of Iron Manufactures, Machinery, New Inventions, and all matters relating to the Iron Coal, Hardware, Engineering, and Metal Trades in general.Office of the Review: 342, Strand, W.C.  
Remittances payable to W. T. Fringie.

ESTABLISHED 1825.

**EDWIN LEWIS AND SONS,**  
Patent Tube Works, MONMORE GREEN and Britannia Boiler Tube Works, ETTINGSHALL,  
**WOLVERHAMPTON.**

MANUFACTURERS OF

**Lapwelded & Buttwelded Wrought-iron, Steel, or Homogeneous Tubes**  
FOR EVERY  
**COLLIERY OR MINING PURPOSE.****J. WOOD ASTON AND CO., STOURBRIDGE**

(WORKS AND OFFICES ADJOINING CRADLEY STATION),

Manufacturers of

**CRANE, INCLINE, AND PIT CHAINS,**  
Also CHAIN CABLES, ANCHORS, and RIGGING CHAINS, IRON and STEEL SHOVELS, SPADES,  
FORKS, ANVILS, VICES, SCYTHES, HAY and CHAFF KNIVES, PICKS, HAMMERS, NAILS,  
RAILWAY and MINING TOOLS, FRYING PANS, BOWLS, LADLES, &c., &c.  
Orab Winches, Pulley and Snatch Blocks, Screw and Lifting Jacks, Ship Knees, Forgings, and Use Iron of all descriptions.  
**WELDED STEEL CHAINS** { FOR CRANES, INCLINES, MINES, &c.,  
MADE ALL SIZES.

## NOTE

This volume has a very tight binding and while every effort has been made to reproduce the centres, force would result in damage